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VOL. LXIII JULY
No. 7 1948

The American City

Issued Monthly by the
American City Magazine Corporation
470 Fourth Ave., New York 16, N. Y.

HAROLD S. BUTTENHEIM, Editor
ALDEN W. WELCH, Secretary, Research Editor
WILLIAM S. FOSTER, Engineering Editor
CAROL W. HIGHTOWER, Production Editor
CARL ERIC CARLSON, Associate Editor

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3275 Wilshire Boulevard, Los Angeles 5
Albert T. Miller, *Pacific Coast Manager*

Mills Building, San Francisco 4
Duncan A. Scott & Co., *Representatives*

Subscription $3 per annum to any part of the world
Single copies, 50c

Entered as second-class matter, July 20, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879. Printed in the U. S. A.

THE MUNICIPAL INDEX and ATLAS, used in connection with the current advertisements in THE AMERICAN CITY, places officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments. This 791-page annual is published by The American City Magazine Corporation, 470 Fourth Ave., New York 16, N. Y.

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Who's Tops in Telephones? It's U. S.

There are more telephones in this country than in all the rest of the world put together. The United States has one telephone for about every four people, compared to one telephone for every ninety people for the rest of the world.

Sweden comes closest with one telephone for every five people. In the British Isles there's one telephone for every eleven people. In Russia the estimate is about one in a hundred.

New York leads the world's cities with the most telephones. It has 2,600,000—more than in all of France. In relation to population, San Francisco is on top with about one telephone for every two people. Washington ranks a close second.

And we're still building and expanding at the fastest rate in history. The value of telephone service is increasing constantly.

BELL TELEPHONE SYSTEM

Our Municipal Notebook

Aid for Cities in Planning and Financing Arterial Routes

A NEW field of federal, state, and municipal cooperation has been opened up in New York State by the arterial route planning and construction program described by Superintendent of Public Works Charles H. Sells on page 72 of this issue.

In enacting legislation which permits the Department of Public Works to conduct extensive traffic and planning surveys, the Governor and Legislature have recognized the importance of integrating inter-city highways and urban-street networks into an efficient transportation system.

The procedure whereby the state assumes all responsibility for the initial surveys and for subsequent study and report provides an extensive and competent technical organization to carry on the investigation without cost to the municipality. Then, when construction is undertaken of the arterial routes within city limits, the state and city governments share equally in the cost of rights of way, and the state and federal governments assume construction costs on an equal basis. This arrangement not only removes a tremendous financial burden from the local taxpayer, but does not affect full participation by the state in the allocation of federal highway funds.

The plans, however, are not considered to be the only possible solution, and local officials are requested to study the proposals in detail, and to recommend any changes which they consider desirable from the city viewpoint. If such recommendations are factual and within the scope of the arterial legislation and do not involve substantial added expenditures, mutual agreement upon such changes may be reached.

Approval by the municipal authorities of the preliminary plans does not carry a financial commitment with it. There is, however, a moral obligation to see the program through, for after local approval the route descriptions are embodied in the state highway law and the Department proceeds with detailed plans and estimates.

When detailed plans of the agreed priority projects have been completed, they are submitted to the local officials for final approval. Official approval binds the city as to the scope and character of the work, after which local legislation must be adopted to permit the local fiscal officer to deposit the city's share of the right-of-way expense with the State Comptroller. When this is done, the state advertises for bids, and if satisfactory bids are received, the project can be placed under construction.

New York State Mayors Meet

REVENUE problems had major attention among a wide range of subjects considered by the New York State Conference of Mayors and other Municipal Officials at its annual meeting in New York City, June 16-18. Papers on various phases of taxation and finance were followed by a series of resolutions adopted at the closing session. Among other revenue aids to municipalities these resolutions urged:

1. That the Governor and Legislature recognize the state's interest in stream pollution abatement by providing a plan of financial assistance for this work.

2. That the federal government aid the cities and villages by the prompt enactment of an adequate and comprehensive housing law which will provide financial aid for the construction of public housing accommodations and for slum clearance and urban redevelopment;

3. That the federal government provide substantial payments to local governments in lieu of taxes on federally owned property in municipalities;

4. That the State Constitution be amend-

"The Time For Talk Is Past"

Much has been written about the financial plight of the cities and towns, large and small. The financial condition of the cities has grown steadily worse. Some have had to curtail essential services, and others face a complete breakdown of such services unless adequate revenues are soon forthcoming. That this condition exists is due primarily to the very limited amount of funds shared by the state governments with their local communities.

The Federal and state governments have literally pre-empted the most productive forms of taxation. After reserving to themselves the productive sources, these governments then blandly stand by and let the cities struggle along with what is left.

Generally, cities and other local governmental agencies are required by law to depend on revenues provided by property taxes, license and permit fees.

Property taxes have been levied to the point where they have become a threat to the growth of the communities, and license and permit fees have been raised to a point where they have become a nuisance to business and industry

Cities are creatures of the state, and it is in city-state relationships that the injustice of present conditions is so glaring. It has been the state governments, by and large, which have put the cities in economic straitjackets and curtailed our home rule powers to the point that the very phrase is meaningless.

The cities only have one source of appeal, and that is to the State Legislatures.

Our people are already paying enough taxes. What we propose is a better, a fairer, and a more equitable distribution of taxes.

Specifically, we propose that the State governments share with their local governments more of the funds now collected from local taxpayers, to the end that the functions and services of city government may be preserved.

The time for talk is past. The governors and state legislators must act if they want to avoid a nationwide breakdown of local governments.

Our schools, our police, fire and health departments and other services must be adequately provided for.

In addition, two immediate steps should be taken by the Federal Government. The Federal admissions tax should be abandoned at once, and this source of revenue made available to municipalities. Secondly, Congress should authorize payments in lieu of taxes on Federal property located within cities.

It is important that local officials in all of the states join together and present the facts to their state governments. It is likewise the responsibility of business, civic, and labor groups to join in support of this program. Business and industry and every taxpayer has a stake in this critical situation.

MAYOR THOMAS A. BURKE,
Cleveland, O.

MAYOR A. P. KAUFMANN,
St. Louis, Mo.

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Chicago, Ill.

MAYOR DAVID LAWRENCE,
Pittsburgh, Pa.

MAYOR GEORGE WELSH,
Grand Rapids, Mich.

Report of Special Committee of The United States Conference of Mayors

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to prohibit the legislature from imposing additional mandatory expenditures on municipalities unless the additional moneys are provided directly from state funds;

5. That the proposed amendments to the State Constitution affecting the tax and debt limits of cities and villages be enacted and that the Legislature submit an additional amendment to the tax limit provision to provide greater taxing powers for New York City;

6. That the Governor and Legislature grant cities and villages additional revenue from state-collected local taxes and revise the state-aid formula to recognize the financial predicament resulting from inflation.

Mayor Boyd E. Golden of Utica was elected president of the Conference for the ensuing year. Morgan Strong continues as executive secretary, with headquarters in Albany. The 1949 convention will be held in Syracuse.

Norris, Tenn., Sold for $2,107,500

RESIDENTS of the planned TVA community of Norris, Tenn., lost out in their bid to purchase the town when it was sold at public auction on June 15 for $2,107,500. Henry David Epstein of Philadelphia, representing a group of businessmen in that city, was the successful bidder. The town's residents have leases on their properties still good for a year, and were told by Mr. Epstein that they will have the opportunity to buy their homes when their leases expire.

National Chamber Urges "Shelf" of Planned Construction Projects

AMONG the resolutions adopted by the Chamber of Commerce of the United States at its 1948 annual meeting was the following, under the heading of Construction and Urban Redevelopment:

Planning and Research. Maintenance of a "shelf" of planned construction projects capable of being awarded when economic conditions call for such action is recognized to be a promising method of stabilizing construction activity. The Chamber recommends adherence to this principle by both private industry and governmental agencies, and its effectuation as far as public works is concerned by renewal of the program of federal repayable loans for the advance planning of local public works.

There should be increasing insistence upon state and community responsibility for their public works. Congress should take steps now to adopt such fiscal policies as will not unduly hamper the ability of the states and local governments to carry out their responsibilities in this and in other fields which are properly within their jurisdiction.

The federal government should assemble currently available basic data regarding construction activity, both private and public, without duplicating the functions or seeking to monopolize the gathering of information now reported by private agencies and by trade associations.

Provision should be made by the construction industry for the setting up of an impartial, non-governmental agency designed to stimulate technical research and to provide an authoritative clearing house of information in the building field.

Two West Coast Cities Elect Women As Mayors

ALTHOUGH there may as yet be no discernible trend, it is certainly significant that within the past year two major West Coast cities, Sacramento and Portland, have elected women to the office of mayor.

Miss Belle Cooledge became Mayor of the City of Sacramento this year as a result of having received the highest number of votes out of a field of 21 candidates running for city councilman. This large popular vote helped assure her appointment by the remaining eight candidates-elect to the office of mayor. Sacramento operates under the council-manager form of government, which designates the Mayor as president of the city council, signatory officer of the city, and the chief executive for ceremonial and entertainment purposes.

Mayor Cooledge, who has a Master's degree in education, with graduate work at both Stanford and Columbia, has served for 35 years as a teacher and administrator in Sacramento's public schools. She was Vice-President and Dean of Women at Sacramento College when she retired from her profession. She has had long experience in a variety of educational, community, and religious groups.

Many of those with whom she is now associated while serving as Mayor of the city were her former high-school and college students. Mayor Cooledge says that she thoroughly enjoys her transfer to a slightly different phase of public life, but finds her duties are still those of dealing with men and women, and she appreciates the opportunity of continuing to serve them.

Mayor Belle Cooledge

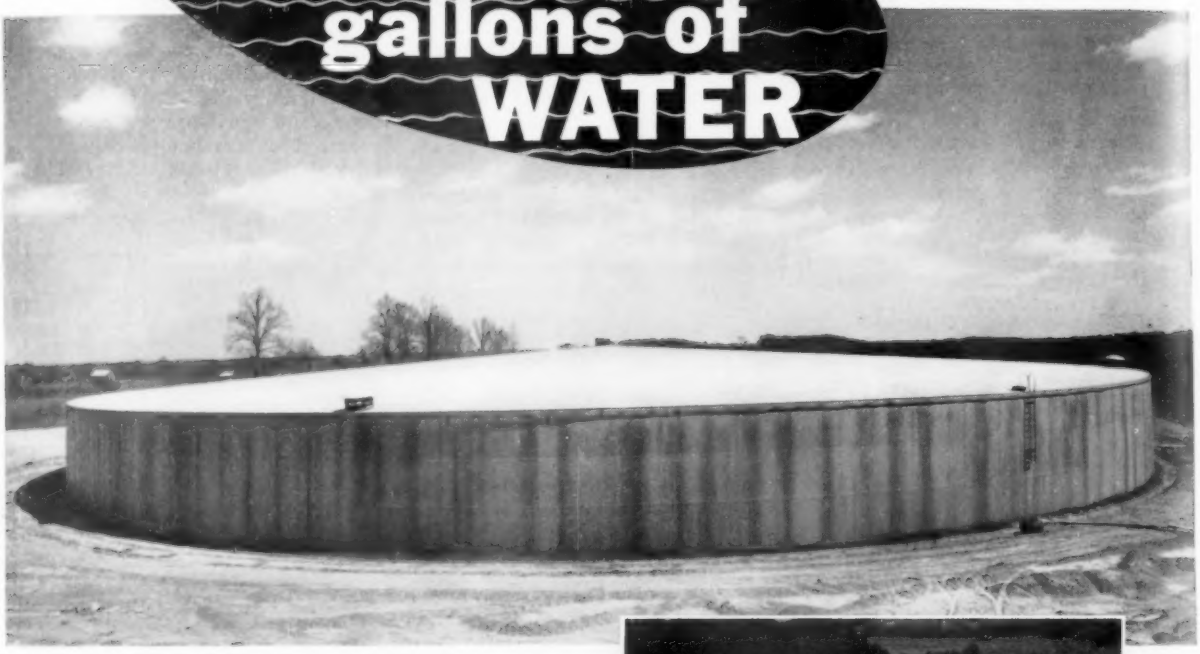
Mrs. Dorothy McCullough Lee will take office for a four-year term next January 1 as Portland's first woman mayor. She was elected on May 21 by more than a three to one majority over her chief opponent, Mayor Earl Riley. A practicing lawyer for 20 years, Mrs. Lee has also been active in the public service. She has two adopted children.

Mayor-Elect Dorothy McC. Lee

Mrs. Lee served as a member of the House of Representatives representing Multnomah County, and as a State Senator for several terms. She served as Chairman of the Oregon Crime Commission from 1931 to 1935, as a member of the Portland Traffic Safety Commission for several years, and as Municipal Judge of Portland during 1940.

In August of 1943, she resigned from the Senate to take a position on the City Council and became Public Utility Commissioner for the city, a post she is still occupying. She has been active in working for the moderization of transit in the city, supervising the large expansion program of the water bureau, and in directing an extensive mosquito-control campaign. In May of 1944 she was elected to the unexpired two-year term of the City Council, to which she had previously been appointed, and in May of 1946 she was re-elected for a full four-year term in the same office.

10,000,000 gallons of WATER

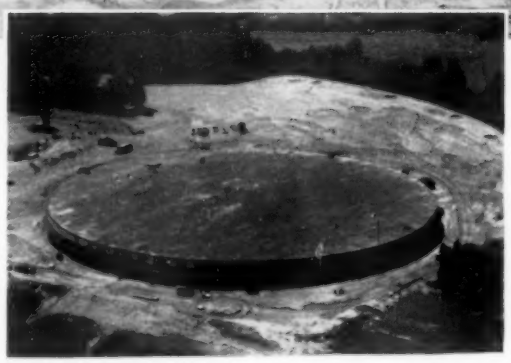


in a single package

A recent addition to the distributed water storage facilities in the Washington Suburban Sanitary District is a 10,000,000-gal. welded steel reservoir erected at Carmody Hills, Maryland, by the Chicago Bridge & Iron Company. Located on high ground, the tank will provide gravity water pressure to meet peak demands in a rapidly growing residential section, and will maintain adequate pressure in widely separated areas supplied by long transmission lines.

Welded steel reservoirs have several advantages. The steel tank will not crack and leak if there is uneven settling. Its butt-welded joints are water tight, and will stay tight. Maintenance costs are low since regular painting will keep the tank in good condition.

When you plan additions or improvements for your municipal water system, ask our nearest office for information and estimating figures on reservoirs or elevated tanks.



The large view shows the 10,000,000-gal. butt-welded steel reservoir 292 ft. in diameter, 21 ft. high, installed at Carmody Hills, Md. It is a flat-bottom structure with a cone roof supported by 160 steel columns. All of the steel used in its construction was pickled by the phosphoric-acid pickling process. Inset: Aerial view of reservoir.

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New York 6.....3308—165 Broadway Bldg
Cleveland 15.....2236 Guildhall Bldg.
Los Angeles 14.....1403 Wm. Fox Bldg.
Chicago 4.....2127 McCormick Bldg
San Francisco 11.....1233-22 Battery Street Bldg
Philadelphia 3.....1616-1700 Walnut Street Bldg.
Atlanta 3.....2114 Healey Bldg
Havana.....402 Abreu Bldg
Detroit 26.....1501 Lafayette Bldg

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

How Air Conditioning Affects Water Supply

UNLESS a city has a tremendous supply of raw water that it can distribute without excessive pumping costs, it should encourage the use of air-conditioning equipment that conserves water through spray towers or other systems. This thought was expressed by Elwood L. Bean, principal Assistant Engineer of the Philadelphia Bureau of Water, at the recent meeting of the Four States' Section of the American Water Works Association, held in Washington, D. C.

AIR CONDITIONING NOT SEASONAL

He pointed out that air conditioning is not confined to the summer months, even in relatively northerly climates. Food-freezing establishments and ice manufacturers all use refrigeration equipment that makes demands on the water works. Despite the season, each person generates 500 BTU's per hour, and 125,000 shoppers in a store will exude some 16 tons of water vapor in one hour. A 1,000-watt electric light produces 12 J s per hour. And for each 24 [illegible], or 3.5 kilowatts of lighting, there will be required one ton of refrigeration. By ton of refrigeration is meant the heat required to melt a ton of ice in 24 hours.

It will take 0.05 gpm of water per ton of refrigeration if good conservation is practiced. Without conservation through the use of evaporative condensers, spray ponds, or other devices, it may take as high as 2.5 gpm. In Philadelphia the probable refrigerative use without conservation would be 141, and it would take 141 mgd on the hottest summer day, or 33% of the present water use of the entire city. With conservation, it would take only 2.3 mgd, or 0.06%.

SEWER SERVICE CHARGES

Mr. Bean showed that use of sewer-service charges tends automatically to encourage conservation practices. At present, Philadelphia makes a sewer-service charge of 40 cents per million gallons for water. Sewer-rental charges are set up for 50 to 100% of the water cost. By raising this to 60 cents or 80 cents, those who now use water in air-conditioning systems would be encouraged to adopt conservation measures.

Mr. Bean stated that specialty shops used air-conditioning equipment 5.5 demand-hours per day during the July-August period, whereas long-hour restaurants used it 10.2 demand-hours per day. In other words, the amount of use averaged 5.5 and 10.2 hours, respectively, at the full rated capacity of the air-conditioning apparatus.

Ten Million Gallons of Low-Head Storage

The Washington Suburban Sanitary District's new low-head storage reservoir.

ONE of the touchy problems that Harry Hall and Harry Shaw, chief engineer and deputy chief engineer of the Washington Suburban Sanitary District, at Carmody Hills, Md., have had to face has been that of adequate storage of filtered water. The most recent steps in the solution of this difficulty has been the erection of a 10-mg steel standpipe. To make the site suitable, the Sanitary District moved some 48,500 cubic yards of sand and gravel, and finished off the area in such a way that four similar structures could be erected if necessary, involving only minor additional grading.

The tank is a Chicago Bridge and Iron structure of welded steel construction. It is believed to be the largest steel water reservoir in the United States, and probably the largest in the world.

Congressional Act Settles Los Angeles Water Dispute

FINAL settlement of the controversy over water-bearing public lands in Inyo and Mono counties, Calif., appeared imminent following introduction of a bill in Congress by Congressman Norris Poulson of Los Angeles, fixing and limiting the rights of the city of Los Angeles in approximately 300,000 acres of lands in that area. The bill has been approved by representatives of Inyo and Mono counties and of all affected state agencies.

"The Poulson bill," stated Samuel B. Morris, General Manager and Chief Engineer of the Los Angeles Municipal Department of Water and Power, "will be mutually beneficial to this city and to the people of Inyo and Mono counties. It will end the uncertainty and insecurity which has existed, providing permanent protection for our water supply, and at the same time permitting use of the federal lands involved by others."

Public lands in the Inyo-Mono area were withdrawn from entry by a Congressional act of 1931, to protect the water supply for the Los Angeles Aqueduct, in operation since 1913. The city's interests in the Inyo-Mono area have since rested for security on continuance of this withdrawal. In 1944, the Department of Water and Power made application to purchase, under the terms of a Congressional act of 1936, the portion of Mono Basin lands essential to protection of the water works in that area. The purchase met with some opposition, and in 1945 a bill was introduced in Congress which would reopen the lands to entry, a move seriously jeopardizing protection of the Los Angeles water supply.

At hearings before the Subcommittee on Public Lands of the House Public Lands Committee, it was suggested that Los Angeles and Inyo-Mono interests work out an agreement to form the basis of a bill for presentation to the Congress, to protect the city's vital water rights, and still permit use of the lands by others.

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Ryerson's function is not only to supply your steel, but to deliver it on time. From the moment the Ryerson switch-board flashes your incoming call until the steel is laid down in your plant, a corps of helpful, intelligent employees well-trained in the Ryerson "Immediate Steel" tradition are at your service.

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In spite of shortages, we are putting forth every effort to serve all Industry to the best of our ability. Naturally, many sizes and certain products are out of stock. However, for the most part you can depend on Ryerson for immediate shipment of a wide range of steel products.

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Structurals	sheets, plates, shapes,	Babbitt
Plates—	bars, tubing, etc.	Metal Working Tools
Inland 4-Way Floor Plate	Sheets and Strip Steel	& Machinery, etc.

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Sewerage and Sewage Treatment

Fire in the Sewer

UTILITIES Superintendent W. M. Reese, of Salem, Ill., had his hands full last fall when not only sewage, but fire, started coming down his sewers. In the Illinois Department of Health publication, *The Digester*, he reported that one of the operators inadvertently tossed a burning match into the sewage at the Comminutor chamber. The chamber flashed, and luckily the operator received only a hair singe. However, the fire department had to swing into action to put the blaze out.

Superintendent Reese suspected gas, and consequently started investigating, using a Davis combustible-gas indicator. This disclosed a highly explosive gas mixture at the plant and at the manhole above. Later an explosion occurred in a local garage boiler room, blowing a manhole cover off. He concluded that the explosive gases had backed up from the sewer through an untrapped floor drain near the boiler and had been ignited by the furnace flames.

After discarding the idea that it might be gasoline or kerosene vapors, he concentrated on the possibility that it might be gas from the city's mains. By blocking off sections of the sewer, he was able to locate the point where a newly laid sewer paralleled the gas main. Here he found a leak. Following the same method of investigation, he found another leak not far away.

The city gas was difficult to detect in the sewer except close to the leak because the sewage apparently absorbed the characteristic odor added to it to make it easily noticeable.

Winchester Builds Post-War Plant

TODAY Winchester, Va., is putting into the construction stage one of the first post-war planning projects undertaken by any city. It is a sewage treatment plant that was docketed for post-war construction for the day after Pearl Harbor. A report recommending the improvement was submitted by Alexander Potter Associates, New York consulting engineers, on that day. Because of the turn of events, the engineers recommended that planning only be undertaken and construction deferred to the post-war period.

To expedite the financing of the project, the city conducted a permissive referendum some 18 months ago that resulted in a bond issue. The people of Winchester approved this proposal by a vote of seven to one, allowing the city to sell bonds at the low rate of 1.5%. With the money thus raised, the city then deposited it in the bank at substantially the same rate of interest, and thus had the funds available.

New York Harbor Still Polluted

LAST month the Interstate Sanitation Commission took commission members and public-health and public-works officials on a tour of New York Harbor. Accompanying the officials were representatives of the daily newspapers and the various technical magazines.

The purpose was to show the present status of harbor pollution.

The trip disclosed that although progress had been made, more progress was required in order to put the harbor into any sort of acceptable condition. Portions of the harbor still were so foul that they corroded the metal work on ships anchored there. A number of open sewers still exist, discharging sanitary sewage wastes into the river. In certain portions of the area, sewers discharge near attractive beaches that are now closed to swimming because of health hazards.

J. Spencer Smith, chairman of the Interstate Sanitation Commission, outlined to those on the inspection trip the functions of the Commission. Its membership represents the states of New York, New Jersey, and Connecticut, and its functions are directed toward these waters common to two or more of the states. Powers granted to the Commission by respective state legislatures give it the authority to order pollution-abatement measures where required. The Commission, however, has adopted the policy of encouraging the abatement measures by public education if at all possible. Where persistent refusal to act exists, the Commission then calls for a court order.

Members of the inspection party stop off long enough to look at treatment facilities at New York City's Tallman's Island Plant.

Members of the party point out a sewer discharging raw sewage into New York's East River. Left to right: J. Spencer Smith, Chairman of the Interstate Sanitation Commission; N. Colosi, Commissioner from New York City; D. F. B. Hickey, Commissioner from Connecticut; F. H. Zurmahlen, Director of Public Works, New York City; C. A. Holmquist, New York State Department of Health.

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Normal Position

1868

Gamewell Fire Alarm Box, 1868 Model
Doors Open, Exposing Mechanism

Prior to the adoption of our trade mark "Gamewell and Clenched Fist" the year of manufacture was cast on the outer cases of our boxes.

The box shown above, Code Number 62, manufactured and installed in 1868, is still in service at Oxford and Hammond Streets, Cambridge, Massachusetts.

This box has never been subjected to factory reconditioning, yet after 80 years of continuous service the mechanism is untarnished, shows no perceptible signs of wear, and continues to send test and fire signals with unfailing accuracy.

We invite your inquiry.

1948

The Modern Fire Alarm Box
Three-Fold Type (Being Operated)

THE GAMEWELL COMPANY

NEWTON UPPER FALLS 64, MASSACHUSETTS

In Canada: Northern Electric Company, Ltd., Montreal

Selecto-Call Fire Radio Used in Sudbury, Mass.

THE Town of Sudbury, Mass., an area of 25 square miles, with a population of 2,200 and 20 volunteer firemen, has in operation an ultra-modern two-way FM mobile radiotelephone system, with an integrated selective calling circuit capable of providing four separate channels for radiotelephone communication. This new feature, known as "Selecto-Call," permits Sudbury's central station to contact, at will, any specific group of receivers, despite the fact that they are all tuned to the same frequency. No. 1 channel services the 10 house receivers of the volunteer firemen, strategically located throughout the town. Channel No. 2 is selective for the two fire trucks, and channels Nos. 3 and 4 serve the cars of the fire chief and police chief.

A fire call to the Sudbury fire station from the telephone exchange in South Sudbury automatically sets off a loud bell. The attendant on duty records the nature and location of the fire and simultaneously opens up the Selecto-Call circuit on the console, which energizes the 10 house receivers, permitting the attendant's message and directions to be received in each house. Each of the ten firemen with house receivers then notifies an alternate volunteer by telephone, and in a few minutes all available men are on their way to the fire.

The first man to arrive at the station takes out the main fire truck, while the second truck is either held in reserve or driven to the fire area, as required. Fire Chief William E. Davison (who also has a house receiver) proceeds to the fire, and at the same time Police Chief Alfred E. Meisner is notified over his Selecto-Call channel.

Now the four Selecto-Call groups are in operation: the 10 house receivers are still available should the wives of the firemen be called over the circuit to telephone for additional aid; the two fire trucks are at the scene of the fire; and the cars of the two chiefs are carrying out their functions. Any one of the four groups can be called individually without interfering with the work of another group.

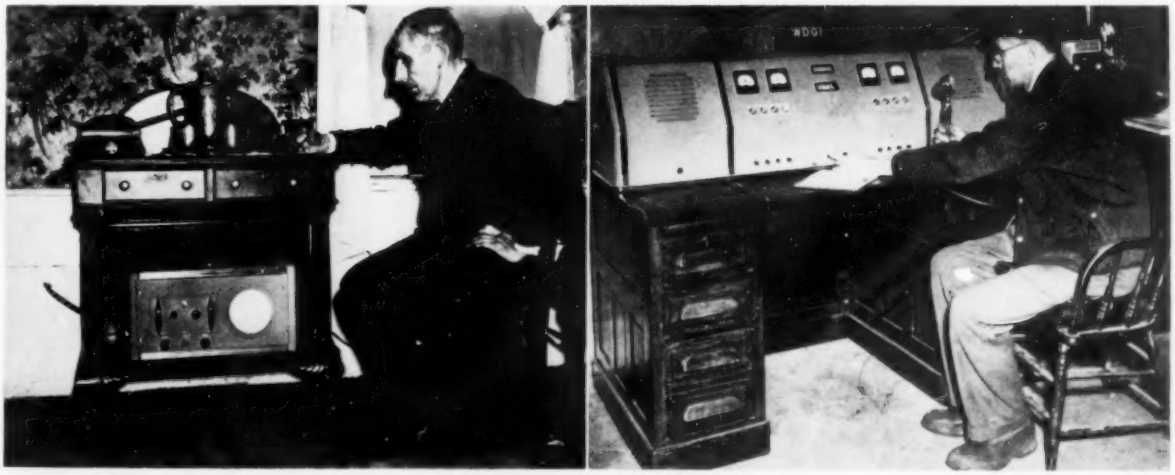
Should the alarm turn out to be a "dud," the firemen can be called back immediately before departing from their work or homes. If two fire trucks are covering a large area (such as a brush fire), they can keep in touch with each other over their own channel. Should the firemen be out on one fire, immediate communication by radio is possible in the event a second fire should break out in another part of town.

Safeguard Fire Alarm

AT a time when the need of the fire department may be the greatest, when life as well as property may depend upon the response of the firemen, climatic conditions may interrupt not only the fire-alarm system but the telephone service, and may also delay the response of fire apparatus.

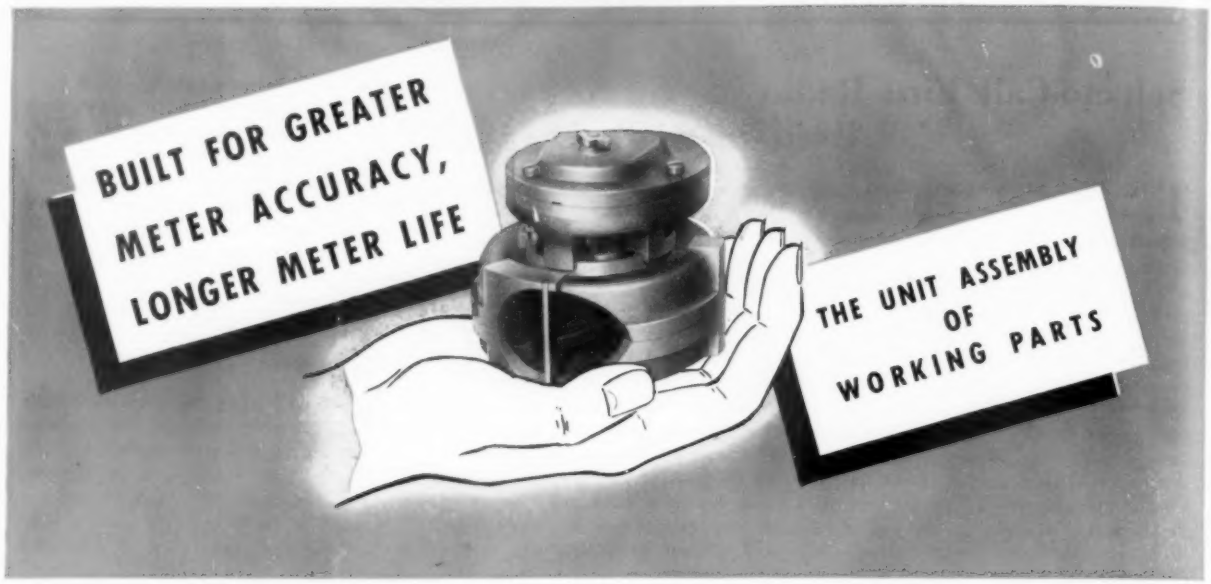
A recent catastrophe was the snow storm, followed by rain and freezing weather, which enveloped a large part of New York, New Jersey, and Connecticut, with extensions into a total of 16 states. Trees and pole lines were down, and wires of all classes of service were out of commission. In the South, a tornado interrupted electrical supply and communication service.

The best cure for these conditions is underground construction, with wires installed in conduits and pipelines. A less costly method is to place all fire-alarm circuits in a cable which can be laid directly in the ground. Specifications for cable of this kind have been prepared by Underwriters Laboratories. A further must is a fire-department intercommunications radio system.



Selecto-Call circuit on Federal telephone and radio console puts the fire-alarm message in the firemen's homes in Sudbury, Mass. Here are Fireman M. Siegars (top), Chief W. E. Davison (left) and Attendant W. E. Pickersgill (right).

Here's a FISTFUL of Precision



You're looking at the "packed-with-performance" heart of a ⅝ in. size Pittsburgh disc meter. It's the precision made, precisely fitted measuring chamber and enclosed gear train assembly.

The care with which these measurement engineered parts are made means greater revenue and lower maintenance for you. For precision in meter manufacture directly affects accuracy in measurement, durability in service.

In Pittsburgh disc meters close dimensional control over machining assures perfectly mated parts, *perfectly interchangeable parts* that 10, 15 or even 20 or more years from now may be economically replaced. And the unit assembly of snap joint measuring chamber, three part disc and enclosed gear train before installation in the meter case provides repair ease and convenience that shop men like.

When you buy disc meters, think of tomorrow as well as today. Buy Pittsburgh Arctic or Tropic type—you'll find they cost less because they measure more.

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Atlanta Boston Chicago Houston Kansas City Los Angeles
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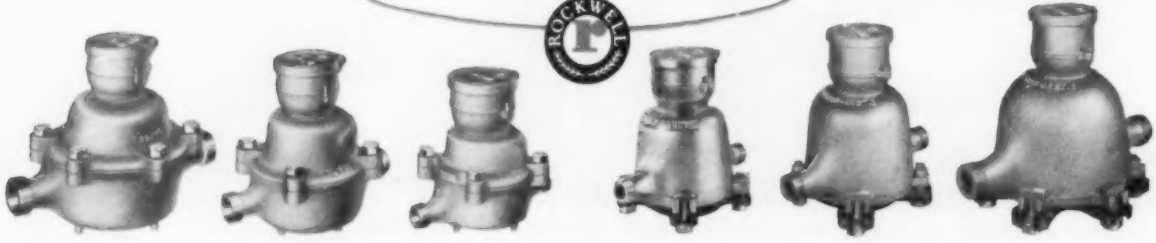
PITTSBURGH DISC WATER METERS

TROPIC SPLIT CASE TYPE
Ask for Bulletin W-805

ARCTIC FROST PROTECTED TYPE
Ask for Bulletin W-804



1 in. size ¾ in. size ⅝ in. size ⅝ in. size ¾ in. size 1 in. size

Street Cleaning and Refuse Disposal

The Public Be Served

THE reluctance of some cities to approve kitchen garbage grinders makes one wonder whose convenience is to be served — the public's or the municipal government's.

The facts are apparent. The grinders represent a quick, sanitary method of ridding the home of organic food wastes. The grinders are a convenience that the householder is willing to supply at his own expense.

On the credit side of the municipal ledger, the grinders reduce the amount of refuse that the city's collection crews must gather. They remove the portion that is nuisance-creating and potentially a health hazard. And they take from the refuse that portion that is difficult to handle in incinerators or that makes refuse troublesome in landfills or in public dumping areas.

On the debit side, the ground garbage does increase the strength of the sewer-clogging is based more on fear mand and more suspended solids to be removed. Certain engineers argue also that in flat sewers now causing difficulty in handling sewage, added solids would aggravate this problem. Therefore, they say, the grinders should not be installed until the sewers are at more nearly conventional grades. A study of the literature indicates that the argument that there is a possibility of sewer-clogging is based more on fear than fact. Those engineers who have handled ground garbage from central station grinders have stated that sewage flow is not one of their problems. All agree that at the plant the ground garbage is amenable to treatment.

The question should not be whether they are to be used in a city's system, but what a sewerage system should do to adapt itself to this new convenience.

Street-Sweeping

WHAT sort of performance should you get from a street sweeper? Clarke Gardner, City Engineer of Salisbury, Md., reports some that his Elgin rolled up during the last year.

His records show that it worked a total of 125 days during this period and covered approximately 1,700 curb-miles and accumulated an estimated 2,500 cubic yards of litter from the gutters. This means that each day the sweeper averaged 13.6 curb-miles. For each curb-mile, it gathered almost 1.5 cubic yards of sweepings during the year. The city has 75 miles of streets of which 56 miles have improved surfaces.

How much grit and other material will you have to dig out of the average catch basin? Salisbury has 576 street drainage basins. The city crews cleaned them on an average of eight times a year and removed approximately 500 cubic yards of silt in the operation. Each basin yielded roughly 0.9 cubic yards of street dirt during the year.

A Pays-for-Itself Incinerator

MIAMI, Fla., is taking a bold step when it begins constructing the world's largest incinerator and does it in such a way that the project stands an excellent chance of paying for itself out of revenue earned from the sale of steam. (See page 75 of this issue.) But it is not taking a step that is uncharted. Atlanta, Ga., lets its incinerator earn a revenue by producing steam and selling it to the local power company. This company, we understand, is able to heat the entire downtown district by the steam generated from the burning refuse (see page 78 of THE AMERICAN CITY for February 1947). Providence, R. I., also lightens the burden of financing refuse disposal by revenue from the production of steam.

In view of the current shortage of oil and the almost annual difficulties that the soft coal mines have each year with Mr. Lewis, it is surprising that more cities haven't exploited this possible producer of heat. New York City is one example. So bad was the oil situation there last winter that the city officials had to invoke almost emergency wartime restrictions to assure fair distribution. And even then much of the city was without fuel for a period. Furthermore, the city desperately needs improved refuse-disposal facilities, but does not have the money to buy them.

To an extent, the same situation exists in many other large cities. Chicago needs something to supplant its open dump. If the sales of steam could make the project look more economically feasible, those officials certainly should study it. St. Louis, also, is wrestling with a refuse-disposal problem and might find its problems simplified by taking similar action. San Francisco for years has been disposing of refuse by the sanitary fill method, but by a vote of the people would prefer incineration. Perhaps revenue from the sale of steam might provide the means of accomplishing this end.

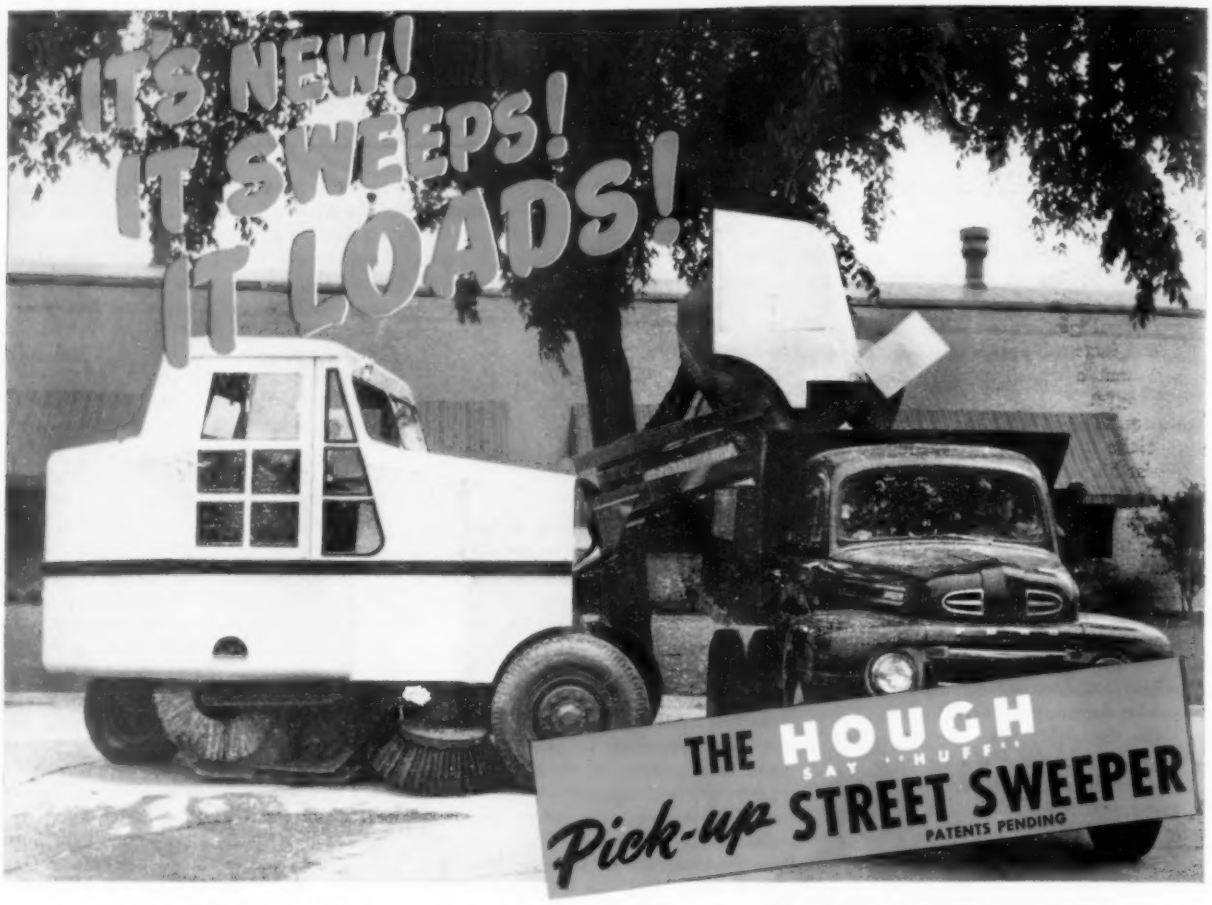
Refuse-Collection "Back Saver"

WHAT is known in Westchester, Calif., as a "back saver," is cutting collection costs by 40% in the Los Angeles community. The average time of loading the trucks has been reduced from five hours to three. Equally important are the savings in manpower energy, since the men load from waist level and are not required to hoist heavy boxes over high sideboards.

The collection service is provided by the M-M Pick-Up Service Co., a private concern. The loader is manufactured by the J. C. Plummer Company, 224 N. Beechwood Drive, Los Angeles 4, Calif.

This shows the low loading height of the Plummer truck-mounted bucket.

The same bucket drops the load quickly into the open truck body.



Saves Time..Saves Labor..Saves Trucks..Cuts Costs

Third-wheel steering and short wheelbase provides turning radius of only 14 feet . . . permits close work around parked cars and complete turn-around on a 30-foot street.

Here's the Sweeper that revolutionizes street cleaning methods and costs because *it loads its dirt directly into trucks.* This feature alone makes all other sweepers obsolete — eliminates the need for gangs of men to shovel dirt piles into trucks — reduces the number of trucks required — substantially reduces interruptions of traffic and normal street use — leaves streets cleaner.

This new sweeper is also outstanding in all other respects. It's a heavy-duty machine with power, capacity, speed, visibility, maneuverability and other advantages that make street cleaning faster, more effective and cheaper. Wheel drive is through gears and axles, oil-bathed in dust tight housings and without chains or sprockets. Dirt box capacity is 2-2/3 cu. yd. — greater than any other — dirt box and elevator can be inspected without dismounting . . . sweeping path is 8 feet with one gutter broom and 10 feet with two. The simple, rugged squeegee-type dirt elevator is positive acting, non-clogging and handles biggest debris. Dual control is available for more effective right and left hand work. Get the complete facts on this new, modern street-cleaning tool. Write for literature and the name of your Hough distributor.

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Airports and Aviation

Will Jet Engines Destroy Airport Runways?

MANY people have asked this question and have received confused answers partly based on assumptions. Consequently, the American Road Builders Association decided to find out the facts. The answer, according to Walter Macatee, Manager of the Airport Division, is "No." These are the reasons:

The first question was that of heat. The dramatic blasts from the jet engines have led many to believe that they would crumble even strong concrete pavement. Studies based on thermocouple determinations disclosed that:

The heat immediately in the rear of the center of the tail pipe is intense, as high as 750° F.

This intensity drops quickly to 120° F. at a point only 2 feet above or below the tail-pipe outlets.

The heat is only 175° F. at a point 50 feet in the rear of the very center of the tail-pipe nozzles.

The jet action is parallel to the runway surface and not against it.

Any city or highway pavement must be able to stand temperature of 140° F. on the surface during any summer.

ASPHALT BURNER—COMPARISON OF ACTION

Any street maintenance man who has tried to burn ordinary sheet asphalt from a pavement by using a direct flame against the surface would immediately recognize how remote is the possibility of damage from a jet of the intensity described when it is also located several feet above the surface.

There is also the fear of fuel spillage—in particular, fuel discharge from the engine tail pipes, said to cause asphalt-pavement disintegration. Fuel spillage would be a problem around maintenance areas, no matter what type of engine. Pavement designers generally allow for this in the type of construction provided in these areas. But the designers of jet engines scoff at the idea that these engines will be so wasteful that they will only partially consume the fuel.

High-velocity blasts of air discharged from jet engines at the tail nozzles, at 800 feet per second, do present a problem on the unpaved shoulders of runways. Paving engineers recognize the need for developing low-cost cementing binders to prevent damage to close-by shoulders. However, they are not too greatly impressed by unfounded reports about jet-heat and spillage of fuels.

Cross-Wind Landing Gear Proves Its Use

FOUR different types of aircraft landed recently at Washington National Airport and crabbed into a 20-mile wind, marking the climax of a Civil Aeronautics Administration program that eventually may save millions of dollars in airport-construction costs.

Observed by representatives of the aircraft industry, officials of the CAA, the Civil Aeronautics Board, and military representatives of the U. S. and other nations, a two-place Ercoupe, a four-place Bellanca, a twin-engined Beechcraft and a standard DC-3 made four landings each on the east-west runway against a wind directly from the north. Behavior of the larger planes proved the contention of CAA and aircraft-industry engineers that planes of any size can be equipped with castering wheels for safe landings in cross-winds.

The CAA expected that decided savings in the airport-building program would be achieved when enough planes are so equipped as to make single runways adequate. Lloyd Child, Assistant to the Administrator for Personal Flying Development, and John H. Geisse, consultant to the CAA on the cross-wind program, feel that the new type of gear requires less skill of the airplane pilot, eliminates the possibility of ground-loop accidents, and, by making possible single-strip landing places closer to congested areas, increases the utility of the personal plane.

The four aircraft which participated in the cross-wind landing gear tests.

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Easy to see and to read in split seconds — at any speed or in heavy traffic — these Grote high-visibility signs are more than merely utility name plates. Designed for fine appearance as well as long usefulness, they are capable guides that speed local deliveries and direct traffic — the kind of street name markers that indicate pride in the community. Known for sturdy construction, sharp embossing that permits greatest visibility, long lasting finish, for economy of installation and maintenance in hundreds of progressive communities. For economy — and safety's sake — Grote Signs.

THE Grote MANUFACTURING CO., INC.
BELLEVUE, KENTUCKY

Street Construction & Maintenance

"Minute Maps" on Roadsides Cut Alabama Accidents

PROCEEDING on the proven basis that it is impossible to safely maintain a given speed over highways for any great distance, the Alabama Department of Public Safety has devised a "minute map" for erection along highways which not only tells the exact safe maximum speed and for what distance ahead that speed may be maintained, but also shows the driver where he is, where the next big city is, and exactly how long it will take him to reach it.

Devised after special surveys were made to establish the maximum safe speeds over the various sections, and incorporating the results of engineering knowledge of the State Highway Department and safety data from the Public Safety Department's experience, the maps show the zone distance and the maximum safe speed for each mile of highway in large figures located within a paneled section next to the map of the particular area.

The bar cutting across the highway route tells the driver exactly where he is; the solid black line indicates the road already traveled and the broken line the distance to be traveled before the driver reaches the next city.

An Asphalt Burner-Grader

A NEW system of taking the wrinkles out of asphalt pavement is being tested in Miami, Fla. It consists of an asphalt burner mounted on a conventional grader. This is followed by a specially designed grader blade that peels away the burned asphalt and leaves a smooth-riding surface behind. It has been used successfully to improve the riding surface of various Miami streets. The machine is reported able to recondition streets at a cost of 10 cents a square yard.

The asphalt burner-grader goes into action on a street in Miami.

Urban Highways— What They Should Be

MODERN planning, says P. H. Martin, Executive Director, Allegheny Conference on Community Development, recognizes that urban highways must provide for:

An adequate number of lanes of adequate width, with divisor strips between opposing lanes of traffic.

Grades that are not excessive, the maximum limit striven for not exceeding 5%.

Grade separation of cross traffic where traffic volumes and physical conditions warrant.

Alignments designed for safe driving at legal limits of speed. In this respect free flow of traffic is to be favored over high-speed traffic.

Adequate lighting with special consideration for points of egress and ingress.

Where urban highways are used by mass-transportation vehicles requiring stopping for loading and unloading of passengers, adequate provision for such service should be provided without interference with other moving traffic.

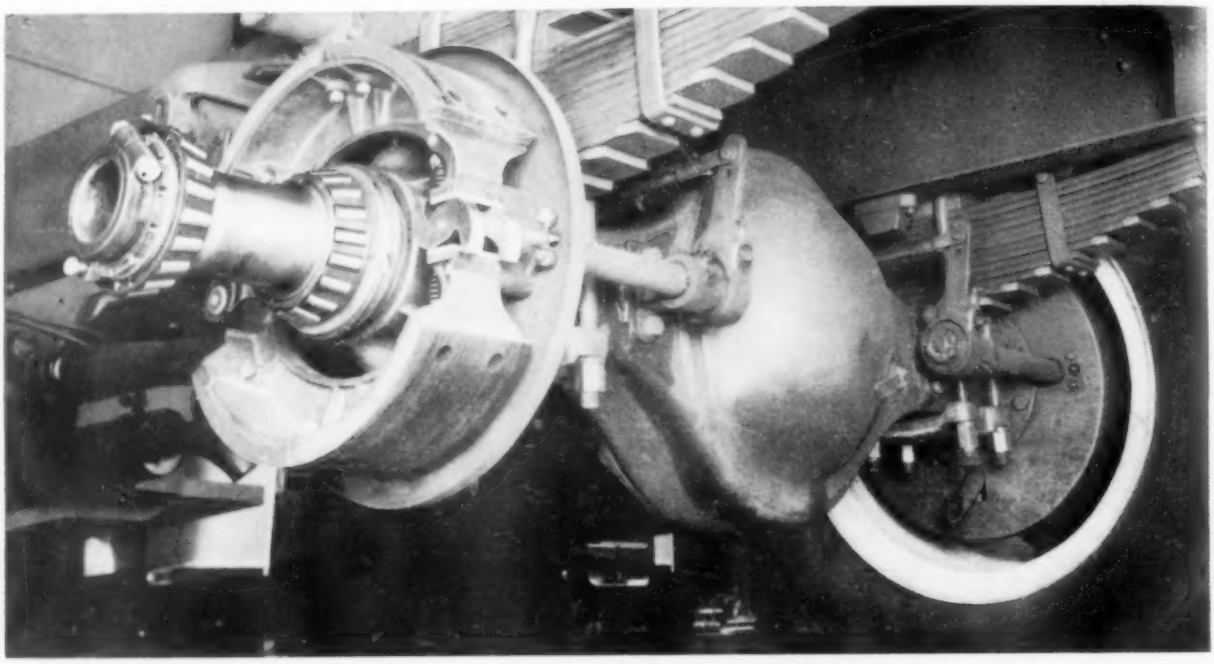
Mr. Martin, speaking before the recent Highway Transportation Congress in Washington, D. C., stated that urban highways containing the features described above may be divided into two classes:

1. Those highways to which abutting property has free access. Such highways will have all the elements contained in ordinary city streets and therefore their disadvantages, when considered in terms of the moving of large numbers of vehicles freely and safely.

2. Limited-access highways, which are just what the name implies. Such highways are the ultimate answer to the need for free movement of large volumes of traffic at high speeds and as safely as can be expected where the human element is concerned. They are especially desirable on highway routes, arterial in nature.

REDUCE CHASSIS AND WHEEL BEARING MAINTENANCE COSTS

Get extra hundreds of miles of protection between overhauls with Texaco Marfak and Texaco Marfak Heavy Duty.



MORE than 275 million pounds of Marfak have been sold!

DOWN come chassis maintenance costs when you use *Texaco Marfak* to lubricate spring shackles, steering knuckles, universal joints and propeller shaft bearings. *Texaco Marfak* assures—

1. *Lasting protection—Texaco Marfak* stays in the bearing under heavy loads and rough service. Parts get better protection, last longer—yet fewer applications are necessary.
2. *Rust prevention—Texaco Marfak* acts to seal out both dirt and moisture. Ordinary road splash won't wash it out. In addition, it has the property of keeping moisture off metal, preventing rust.

In wheel bearings, use *Texaco Marfak Heavy Duty*. It seals itself in . . . seals out dirt and moisture. And because it stays *in* the bearings, it stays *off* the brakes—an important safety factor. It's a year 'round lubricant, too—no seasonal repacking is required.

Let a Texaco Lubrication Engineer help you with *all* your lubrication and tell you about the Texaco Simplified Lubrication Plan. Just call the nearest of the more than 2500 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

2 MORE PLACES TO REDUCE COSTS

Keep Diesel and heavy-duty gasoline engines clean by lubricating with *Texaco Ursa Oil X***. It's fully detergent and dispersive . . . assures trouble-free operation, maximum efficiency, minimum fuel costs.

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Protect track rolls from dirt and moisture with *Texaco Track Roll Lubricant*. It seals out contaminants, assures longer bearing life.

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Volume XLIII No. 7
JULY 1948
The American City

The Organized Community — *Bulwark of Democracy*

By HAROLD W. DODDS
President, Princeton University

MY THESIS is the simple one that unless both local government and community civic activities of a non-governmental character are continued in full vigor and effectiveness, democracy in any accurate sense of the term will vanish before we know it is gone.

After many generations in which our liberties seemed secure for all times, western civilization has to face and resolve again the old problem of the right balance between government and liberty; or in other words, how to reconcile authority and freedom, as the philosophers would say.

Federalism and Home Rule

Big government raises new and acute questions of citizen participation which did not exist in a simpler society in which government was an adjuster and not a provider. Are big government and citizen participation mutually exclusive things? They will turn out to be so unless we take wise and prompt measures to prevent it. My answer is that we shall succeed only as we preserve in a lively and effective manner the principles of federalism and home rule.

Everyone understands what federalism means. It is the system for the distribution of governmental power between the nation and its constituent parts. It assumes that matters of general and national concern will be handled by the central government and that matters of local concern will be handled by the local governments. The federal system incorporated in our Constitution in 1787 was one of the great political inventions of all time. It made possible the extension of popular government to large and diverse areas. It controverted the philosophy of the ancients that popular government was possible only in small communities. In other words, our constitutional system has proved that you can provide a common government for a nation of continental dimensions while retaining active citizen participation and control, a thing that earlier political philosophers had considered impossible.

Citizen Participation in Government

If we are to have democracy, and not tyranny, the government's legal and potential monopoly of power must be popularly controlled. To control it in a large nation like the United States, it must be divided. Furthermore, to preserve citizen participation in government, local governments must be strong, because the farther the seat of the government gets away from the people the less can be their participation and control. Finally—and this is most important—the local governments must be efficient in the performance of their functions. Otherwise they will be lost by default, and they will lose by default quickly under the present trends to centralization. Our communities cannot survive as units of government under the corrupt and slip-shod methods which brought about the shame of our cities fifty years ago, of which we have not yet fully cleared ourselves.

But there is another side to this question of community enterprise which has to do most directly with the aims of the National Council for Community Improvement. I refer to the future prosperity and health of non-governmental agencies and associations of citizens, responsible to no political party, who carry on great community and civic enterprises. Here I am talking about a division of labor and responsibility between governmental and non-governmental activities. We know that over the past generation the government has taken over more and more of those functions that used to be the chief responsibilities of citizen groups. There have been various reasons for this, and one reason has been the failure of civic associations and private contributors to handle problems they were trying to meet. One can predict with certainty that the government will continue to occupy more and more of the field of public welfare if private agencies relax.

Nothing is clearer to me than the fact expressed a generation ago by Lord Acton, that liberty is possible only in a society in which there are strong centers of organization and activity other than political. Against the potential monopoly of governmental power

From an address before the National Conference on Community Improvement, in Washington, D. C., May 24, 1948.

we must constantly oppose the activities of private individuals and organizations with a public and civic purpose. Just as there must be a division of labor between the national governments and the municipal governments, so must we maintain a division of labor between governmental and non-governmental agencies and activities.

Where Freedom Is Safe

Freedom is safe only in those nations in which all sorts of private associations interested in public questions—chambers of commerce, labor unions, community chests, social clubs, garden clubs, even Thursday afternoon bridge clubs—are able to thrive. Only in such organizations will we find the means to hold before the people fresh, living ideas which give life to a democracy. It is obvious that the totalitarian state, irrespective of whether it calls itself fascist or democratic, cannot afford to leave great power over public opinion in private hands. Naturally, a totalitarian government has no room for the Boy Scouts.

I don't think we realize sufficiently how much modern life is doing to weaken the allegiance of the individual to the community. The idea of neighborhoods in the old-fashioned sense has disappeared in large measure in our urban centers, and yet man's instinct calls for participation in community life. Happiness, friendliness, social peace are found only in settled community relationships with each other. No one knows how much discontent and search for artificial stimulants spring from unconscious efforts to fill the void in our lives caused by the disappearance of the spirit of neighborliness. The anonymity of city life, the large amount of crime, mental disorders, and family troubles which accompany high residential mobility are evidences of weakened community spirit.

To Restore the Sense of Neighborhood

A strong America demands a united and happy America, free of subversive social tensions and antagonisms. Unless we can restore and maintain this sense of being a member of a community, at home among friends and neighbors, we cannot expect a united America. I am not arguing for a return to the horse-and-buggy days with its country store and cracker barrel club. But although the conversation around the cracker barrel may often have been trivial, its passing has left a vacuum in our society which is being filled in disturbing and unsettling ways.

Of course the government has its responsibilities in this area. There is much that it can and must do, but there is much that government can't do because of the very limitations of its function and outlook.

The sense of neighborhood cannot be restored by government. It involves the development of a whole set of spontaneous non-political relationships which are foreign to the nature of government. Unless we are willing to accept the principcle of the corporative state, as Mussolini called it, we must organize society more along lines of voluntary associations, rather than along lines of coercion by government. It is to this end that this new organization is dedicated. Nothing more significant to the American way of life can be conceived.

What's Wrong With Our Cities?

By HUBERT H. HUMPHREY, *Mayor*
Minneapolis, Minn.

I AM one of the people who believe that we should start building a better world in our own home town. The highways of our democracy are the sum total of the Main Streets of our communities. Yes—the world is in trouble,

but so are our cities. People make a city, people suffer when city services break down. The American people, their homes, their schools, their streets, their health services—these are the substance out of which cities are made.

What's wrong with our cities? First, cities do not have the tools of government to solve their own problems. What power the municipality has, it receives as a gift from the state government. Home-rule authority is often limited by legislative restraints.

Fifty-nine per cent of all Americans live in our cities and towns. Although this 59% elects only 25% of our state legislators, it pays 90% of our taxes—federal, state, and local. Yet all of our cities are hard-put today to pay current expenses.

To those who are opposed to federal aid to our municipalities, I say: Either the city must be given the power to govern itself and the power to raise its own revenue, or the city must expect generous assistance from the state and federal governments.

What is wrong with our American cities? Insufficient revenue, yes; but also, municipal governments need overhauling. The difficult problems facing a modern city cannot be met with machinery of government written and planned for a century long past. Consolidation of city and county government — unification of city and suburb services—these are needed.

To Give Local Democracy a Chance to Win

All too often the industrial, commercial, and residential areas of our cities grew without plan. Every city needs to take a new look at its basic stucture of community development. Every city needs to plan its course of development for the future and to retrace its steps by correcting, through slum clearance, the mistakes of the past.

Slums, rotten broken-down areas, are the ulcers which may develop into the cancer that will consume the physical and economic structure of the industrial city. Slum areas are extravagances which eat up our revenues and destroy our strength. Every American city, in cooperation with the state and federal governments, must set itself to the task of ripping out its slums and rebuilding them into wholesome and productive communities.

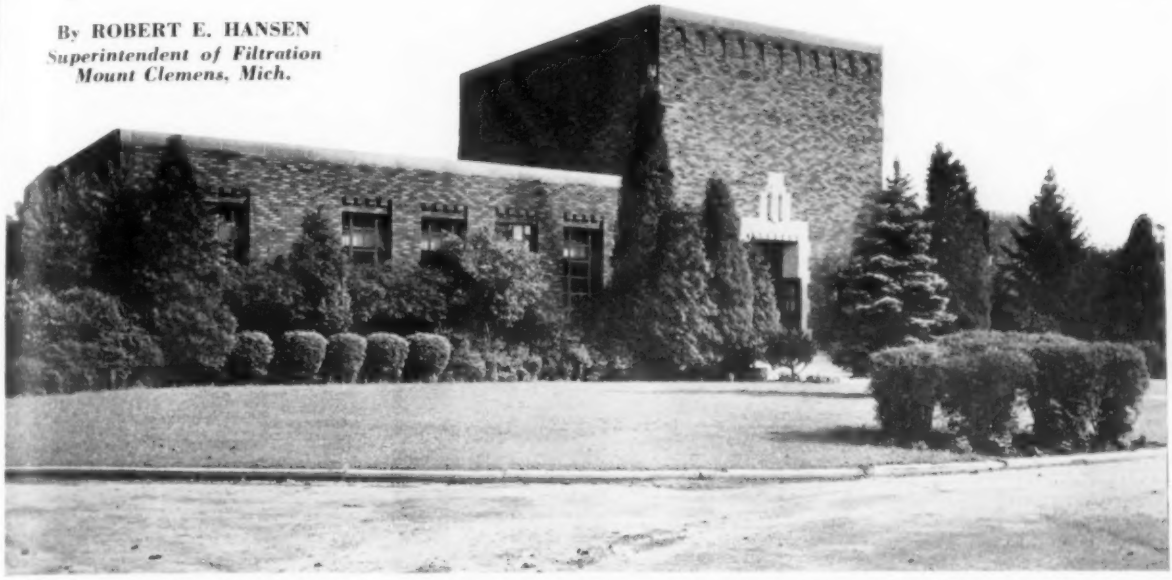
Some people say this is too expensive. I say it is sound economy. Unless it is done, the American city will rot from within. It is in the removal of our slums, the tearing down of our miserable tenements, and the rebuilding into parks, playgrounds, and homes where there must be cooperation between the federal, state, and city governments.

Make no mistake about it. Either we lick the slums or the slums will destroy the city. By taking care of our own blocks in our own cities we may be able to prevent block busters from taking care of them later on. Let us give to our local democracy the power to win!

From a summary prepared by Mayor Humphrey of his radio talk on "America's Town Meeting of Air," at Springfield, Ohio, May 25, 1948.

Filter Reconstruction.....Part I

By ROBERT E. HANSEN
Superintendent of Filtration
Mount Clemens, Mich.



The Mount Clemens filter plant and pumping station. Attractive landscaping makes it one of the city's showplaces.

A water superintendent tells in a three-part story how he learned to add years of life to his filter beds. In this instalment he describes his plant and tells how he handled filter reconstruction the first time the problem arose

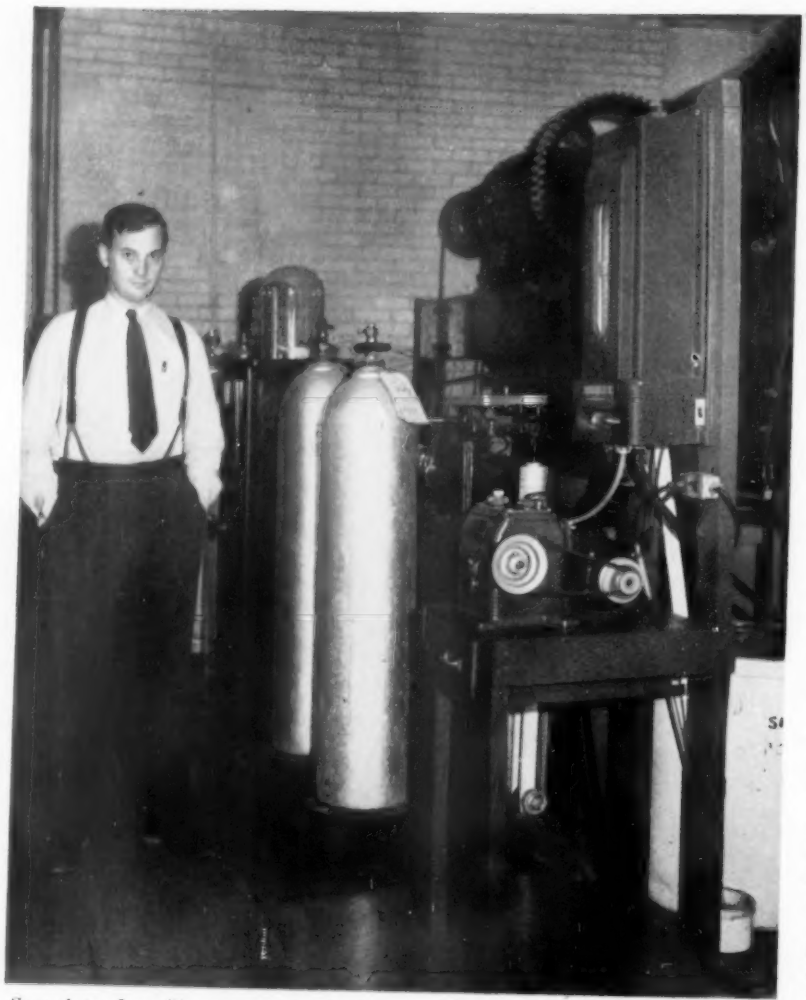
EVERYONE likes a comfortable bed. When we are reminded of the fact that we spend a third of our lives in them, it is no wonder that we like them comfortable and free of lumps. This water superintendent, like many others, spends a good portion of the remaining two-thirds of his life with an active and conscious concern over another type of beds—filter beds. We like these to be comfortable and free of lumps, also.

Just as the beds at home need remaking on occasions, the filter beds in our plant also need attention at intervals. In fact, during the recent years we have had to take the filters apart and completely rebuild them. Because we now know a lot more about the inner mechanics of a filter than we did before, and because many of our friends in the municipal field helped us generously with constructive advice and often with valuable equipment and tools, we would like to chronicle our work in this filter reconstruction, feeling that possibly our experience will help them and others avoid some of the difficulties we encountered.

This discussion is divided into three parts. The first will describe our plant briefly and will tell of our experiences when we rebuilt one of the filters in 1944. The second will record our research into the subject of filter underdrains. The third will describe the program of reconstruction that we developed on the basis of these studies.

The Mount Clemens plant serves a

Here is the filter room with its four filters. F. B. Leopold operating tables, controlling hydraulically operated valves, govern the filter operation.



Superintendent Hansen stands beside the chlorine-dioxide generator that he uses to control phenolic tastes. The crock holding the sodium-chloride solution is at right. In the foreground are the Proportioneers chemical-feeding pumps. The equipment is located alongside the Wallace and Tiernan chlorinators.

population of about 21,000, including Selfridge Field and two townships as well as Mount Clemens. The filter plant and pumping station were built in 1928-29, and have a capacity rated at 4 mgd with a possible overload of 50%. Four filters, each rated at one mgd, designed on the conventional figure of 2 gallons per square foot per minute, furnish this capacity.

The pumping station's maximum capacity is rated at 12 mgd at a head of 200 feet. A 4-mg clearwell supplies storage with approximately 3 mgd normally in use. We obtain our water from Lake St. Clair, and its hardness varies roughly between 80 to 130 ppm, expressed as calcium carbonate.

The filters formerly were of the conventional type with manifolds, perforated laterals, and graded gravel. Four manifolds served 96 laterals in each filter.

In addition to sedimentation, filtration, and chlorination, the water treatment involves the use of chlorine dioxide to control phenolic tastes. This has been most successful and the equipment has been simple to operate.

Filter-Washing Difficulty

We observed a few years ago that at the beginning of the backwash the sand would not "break" evenly over the filter surface, but would boil violently in spots while other areas remained quiescent. I assumed that the trouble had come from damaged underdrain laterals, mixed gravel, or mudballs between the gravel and the sand. Actually we found all three conditions. Formation of mudballs had been a serious problem until we installed an effective surface wash in 1943. We had air in the filters a number of times during previous years, which no doubt contributed greatly to the mixing and mounding of the gravel layers.

In November 1943, I attempted to get an idea of how badly the gravel had mounded by shoving a yardstick through the sand layer of one filter until the gravel stopped it. Of course, this was not a true measurement of the sand depth. Nevertheless the measurements taken showed a variation of 17 inches in the depth.

We dug down through the sand in the area where the sand layer appeared to be the shallowest. Curiously, we found, from 7 inches below the sand surface to the top of the gravel bed, many scattered pieces of gravel ranging in size from 1 inch to 2½ inches apparently suspended in the sand bed. When we reached the gravel layer, we found mixed gravel of ¾ to 2 inches in size. A few feet away was an area where the sand appeared to be the deepest. Digging to the top of the gravel bed there, we found a mixture of gravel ranging from ⅛ to 1 inch. It was at this point later on that we found some laterals with large holes in them.

First Filter Repair

On March 23, 1944, the loss-of-head readings on our #1 filter were backing up. Consequently we took the filter out of service and drained it. We found a large depression in the sand about 1 foot deep and about 4 feet in diameter. We decided to begin rebuilding the filter at once so that it would be ready for summer, when we would need all four filters in service.

We laid planks on the lawn behind the filter room to place the materials on, since at the time we believed we would be effecting an economy by reusing the sand and gravel. A little experience taught us that we were wrong.

We removed both sand and gravel by hand with shovels and transported it in wheelbarrows. We found nine cast-iron laterals damaged and replaced them with new cast-iron laterals. The orifices of the laterals were brass-bushed and still had the original ⅜-inch-diameter openings, showing virtually no signs of wear. Many orifices were plugged with a deposit of small gravel and iron rust. Many of the brass-bushed 1/16-inch-diameter air holes on the top ends of the laterals were plugged in a like manner.

We regraded all the gravel with screens lent us by Roberts Hulbert of the Detroit Water Works. Original specifications had called for 18 inches of gravel, but we ended with 15½ inches, using all the gravel that we took out, except for a small amount screened out of the sand. The specifications also called for a size range between 1 and 2 inches for the largest, but we found gravel as large as 4 inches.

We reused all our sand also. The

specifications had indicated that the finest gravel to be used would be retained on a 10-mesh screen. Much fine gravel went through this screen, so we used a 16-mesh instead. The sand was washed through with hoses to remove the fine gravel. Our sand is Ottawa Silurian Filtrations sand with an effective size of 0.45 mm. There were originally 30 inches of sand in the filters. We ended with 25½ inches. In 15 years of plant operation, 4½ inches of sand has been lost, some through the filter beds and into the clearwell; the rest went over the wash-water troughs and out the plant drain during filter backwashings.

Angleworms Caused Trouble

When we began washing the new filter, angleworms would keep coming up to the sand surface. We drained the filter after each wash and picked them out. The next day, after another wash, more would appear. They must have worked up from the lawn through the planks into some washed and screened sand that probably was left outside overnight before being brought into the filter. We killed them all with a dose of chlorine, the same strength used in disinfecting a filter, and they all washed out. We used a better method of sand storage for the next three filters we rebuilt, and were not troubled again in this way.

During the next three years, we found it necessary to dig away the sand by quarter-sections at a time in all the other three filters and level off the gravel beds to improve our filter backwashes. Much caked mud was found against the filter walls, and some at the top of the gravel bed.

Findings

Consequently, we observed that 15 years of filter operation had mixed the gravel, allowed sand to work through the gravel, and had allowed mudballs to occur, showing the ineffectiveness of our filter surface wash previous to 1943. This had consisted of two small ejectors in each filter, placed near the sand surface during the backwash. We further learned that much of the difficulty lay with a deterioration of our filter-bed laterals. We also noted a loss of 4½ inches of filter sand that went through the beds and into the clearwell; some also went over the troughs during backwashing.

We also learned that if sand is stored for use in filter beds, it should be put on a platform solid enough to prevent angleworms from working their way in.

Various ways of rebuilding our three other filters were studied, and many inquiries made as to ways and means, prices and experience. In order to find out how these various filter bottoms worked out in actual practice, I wrote to 69 plants in the United States and Canada. I heard from 40 of them and had three reports orally from the operators. Many letters reported on experiences with more than one type of filter. Out of these reports and studies we developed methods that materially aided the reconstruction of the balance of our filters. These interesting findings will be discussed in the next phase of this story.

"United Neighbors" to Promote World-Wide Friendships Among Cities

By WALLACE A. BRENNAN
New York State Society of Newspaper Editors
Dunkirk, N. Y.

AS a result of a weekend conference in Dunkirk, N. Y., June 11-13, steps were taken for the formation of an international organization to be known as UNITED NEIGHBORS.

Initiated by the Dunkirk Society, sponsor of the nationally famous Dunkirk-to-Dunkerque and Dunkirk-to-Anzio friendship gestures, some sixty cities sent representatives to the conference, which was jointly sponsored by Operation Democracy, Inc. All of these cities had staged similar gestures of town affiliation with communities abroad. They endorsed the plan of widening these initial gestures of friendly relief into permanent cultural relationship in the interest of better understanding and peace.

By unanimous resolution of the conference, Operation Democracy is authorized to harmonize two plans of organization (one presented by the Dunkirk Society and one presented by Dr. Louis Schwab of Cincinnati) and to report back within four months.

Delegates regarded this movement as designed to give the ordinary people who are called on to fight wars some means of expressing their aspirations to do something about the peace. They have no pretensions to guiding or forming foreign policy, which is a purely governmental function, but they do want to express that neighborliness which is essential to local and international harmony. They have had vague, unofficial assurances from the State Department that this movement is an adjunct to the pursuit of international friendships which is definitely a recognized part of our nation's foreign policy. Many of the activities of the groups which are now consolidating into United Neighbors have been reported on the Voice of America broadcasts.

United Neighbors will function through local societies affiliated with national and international headquarters. They will clear their efforts to establish relationships through national headquarters, through relief agencies, and through the State Department. Thereafter they will make an initial gesture of friendly gifts so long as relief and reconstruction aid is needed. When the need for immediate help has passed, they hope to exchange visits, correspondence, scholarships, and other means of liaison with their foreign affiliates.

Further information may be secured from the Dunkirk Society, Dunkirk, N. Y., or from Operation Democracy, 369 Lexington Ave., New York, N. Y.

International Union of Local Authorities Seeks America Memberships

AMERICAN cities are being asked to play a more active part in the work of the International Union of Local Authorities, now that membership is available on an individual city basis rather than restricted to national unions of municipalities. Since 1913, except for the periods of World Wars I and II, the International Union has functioned from its headquarters in Brussels as the only international body in the world representing municipal governments.

As now constituted, the membership of the International Union largely consists of municipalities and national municipal organizations from the countries of Western Europe. Included are Great Britain, with 176 city members, and France, Holland, Belgium, and Switzerland. The United States has had a partial membership since early in 1930 but has never paid the full share of its dues.

The International Union's main function is to serve as a clearing house of information which, through its publications, conferences, and congresses give to municipalities the opportunity of comparing notes and learning how problems common to all are solved in one or another country. It is also hoped that by such cooperation city officials can make some small contribution to the preservation of world peace.

The next International General Assembly is scheduled to meet in Geneva, Switzerland, in May 1949. Further information may be obtained direct from the International Union of Cities, 5, Rue de la Regence, Brussels, or from the U. S. Conference of Mayors Committee for the United States, 730 Jackson Place, Washington, D. C.

Schenectady's proposed arterial routes.

New York State's Answer To Urban Traffic Problems

By CHARLES H. SELLS
New York State Superintendent of Public Works

WHAT is the most pressing problem confronting the cities of our nation? This was the gist of a question asked in a recent nation-wide public opinion poll. The answer, as any city planner might well guess, was "Traffic Congestion." Regardless of size or general location of the city in which the question was raised, the prevailing answer was the same—"Do something to get rid of stop-and-go driving." That is what New York State is already striving to accomplish.

Slightly more than two years ago New York State launched a monumental new program of research and planning designed to improve the economy and well-being of all its cities through construction of adequate systems of urban arterial routes in each.

That program is now well advanced. Complete master plans have been presented to the officials of nine communities and studies covering 39 other cities are in various stages of completion. Surveys of the rest of New York State's 62 cities—except New York City, which has carried out its own planning—will be undertaken during the summer of 1948.

Scientific Surveys Are Basis for Planning

Responsible for this herculean task of urban arterial route planning is the New York State Department of Public Works. Avoiding any possibility of dependance upon preconceived ideas and opinions which might prove to be partially or wholly fallacious, the Department's engineers are basing their surveys solely upon scientifically obtained objective data.

Until the present program of urban arterial-route construction was undertaken, the State's highway-building activities were limited entirely to those thoroughfares which were located beyond the corporate limits of its municipalities. Such a policy resulted in the construction of broad, high-capacity highways which discharged their swollen traffic streams onto already overcrowded streets once the city lines were crossed.

Realizing the obsolescence and unfairness of antiquated policies requiring the city real-estate taxpayer to bear the whole burden of the cost of construction of thoroughfares vital to the flow of primary rural as well as urban traffic, Governor Thomas E. Dewey obtained passage by the 1944 State Legislature of amendments to the Highway Law which properly vested authority in the state for arterial route construction within cities.

State Bureau Is "Nerve Center"

As one of its first moves after the enactment of that important legislation, the State Department of Public Works created within its organization a Bureau of Arterial Route Planning which has become the nerve center of New York

SUMMARY OF FIRST NINE URBAN ARTERIAL ROUTE PLANS SUBMITTED BY NEW YORK STATE DEPARTMENT OF PUBLIC WORKS

City	Population 1940 Census	Projects Within City Limits		Projects Outside City Limits		Total Proposed Urban Area Program			
		Mileage	Est. Cost	Mileage	Est. Cost	Mileage	City Share[3]	State and Fed. Share[4]	Total Estimated Cost
Buffalo[1]	575,901	21.20	$23,545,000	26.8	$15,350,000	48.00	$1,257,000	$64,638,000	$68,895,000
Dunkirk[1]	17,713	4.70	1,017,000	5.7	855,000	10.40	19,500	1,852,500	1,872,000
Rome[1]	34,214	5.60	2,285,000	8.2	1,206,000	13.80	195,000	3,296,000	3,491,000
Rochester[1]	324,975	28.80	34,159,700	19.03	6,443,800	47.83	9,370,950	31,232,550	40,603,500
Syracuse[1]	205,967	20.86	23,479,000	22.9	5,021,000	43.76	5,278,000	23,222,000	28,500,000
Corning[2]	16,212	2.19	1,955,000	3.61	5,672,000	5.80	35,000	7,592,000	7,627,000
Poughkeepsie[2]	40,478	4.07	6,744,300	0.94	898,100	5.01	1,801,200	5,841,200	7,642,400
Binghamton[2]	78,309	11.15	9,657,000	21.0	10,991,500	32.15	1,206,255	19,442,245	20,648,500
Schenectady[2]	87,549	8.81	8,445,000	7.85	6,609,000	16.66	781,000	14,273,000	15,054,000

[1] Estimates based on 1940 prices.
[2] Estimates based on 1947 prices.
[3] Represents one-half of current assessed valuations equalized to 100% plus 15%.
[4] If Federal Aid is continued in accordance with allocations made under terms of 1944 federal legislation, costs of *Arterial Route* construction will be financed by matching state and federal funds. Any *Thruway* construction involved in master plans will be financed entirely by state funds.

State's arterial route construction program.

For purposes of construction and maintenance of public works facilities, New York State is divided into ten districts, each of which is under the direct supervision of a district engineer who, in turn, is responsible for all operations of the Department of Public Works in the counties under his jurisdiction. These responsibilities now include the development of arterial-route plans for those cities situated within the area under his control.

The Bureau of Arterial Route Planning, with headquarters in the Department's main office in Albany, assists the various district engineers in an advisory capacity and serves as a liaison unit between them and the Department's chief engineer and superintendent.

Planning Procedures Same for Each City

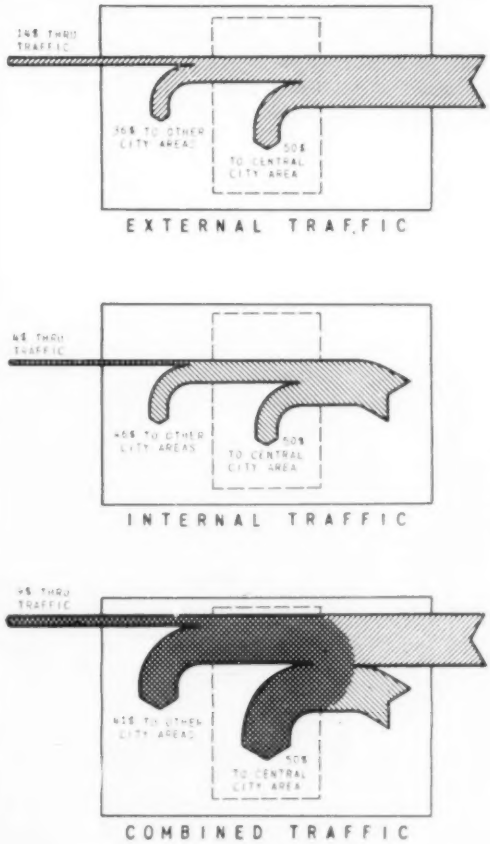
Procedures which have been established for the preparation of master plans are the same for each city, regardless of size or location. Each community has its own peculiar planning problems and presents its own specific problems as to direction and type of traffic, topography, and other allied factors. The solution of these problems through the design of arterial-highway systems must, in consequence, be tailor-made for the community under survey.

Because no traffic planning can be advanced without adequate data on existing traffic flow and street patterns, the first move in any survey is a comprehensive analysis of traffic density, flow, and dispersal. As a result, two surveys of traffic are undertaken. The first involves a count of all traffic moving past selected key points at the city boundaries and around its central business area. The second consists of a comprehensive origin-and-destination survey, in which all drivers entering the city or moving into its business area are stopped and provided with pre-addressed, printed questionnaire postal cards which the operators fill out and mail to the office of the appropriate district engineer upon the completion of the trip being made at that time.

Through a tabulation and analysis of the answers to these questionnaires, the district engineer's staff is able to determine where traffic came from, where it went, what routes were followed in or through the city, parking habits, and other equally important information.

Next comes an objective study of traffic flow which is made by a series of carefully timed trips on which cars are driven in peak-hour traffic on each primary travel artery from the center of the city to its outskirts. From these field trips, full data are obtained as to the length of time required for normal traffic movement to all portions of the city.

Adequacy of existing main thoroughfares is then measured by comparing



CITY	POPULATION
Binghamton	78,309
Buffalo	575,901
Corning	16,212
Dunkirk	17,713
Poughkeepsie	40,478
Rochester	324,975
Rome	34,214
Syracuse	205,967
Total	1,293,769

COMPOSITE ANALYSIS OF VEHICLE ORIGIN AND DESTINATION DATA FROM 8 NEW YORK STATE CITIES

NEW YORK STATE DEPARTMENT OF PUBLIC WORKS
BUREAU OF ARTERIAL ROUTE PLANNING

known traffic densities to street capacities. In addition, city officials and civic organizations are canvassed in order to obtain further pertinent data for use by those making the specific surveys.

Armed with all these data, the state planners may then go to work. Realizing that not all traffic moving into any given community wishes to enter or pass through its business section, the engineers seek in general to provide a desirable pattern of arterial routes which will conform to the controlling physical conditions and meet the existing and potential traffic needs.

Much time and study are required for the correlation of data obtained in the preliminary surveys and studies to the existing street facilities within a city, and for the delineation of a system of arterial highways which will accommodate safely and well immediate and probable future traffic of the city and its adjacent urban area, and yet be financially realistic.

Routes to be constructed in the various cities of New York State will, in some instances, require only modernization of certain existing thoroughfares to eradicate deficiencies. Some will be entirely new highways or expressways, some at street level, others elevated or depressed as need dictates.

Plans Presented to Cities for Review and Action

Once the routes have been selected, however, the district engineer and his staff may begin the drafting of the master report, which will include graphs, maps, and discussions of all pertinent background data, together with charts depicting traffic flow, traffic dispersal, time flow, and all other elements which influenced the recommendations presented in the report. These in turn lead to a full description of the proposed new or revised arterial routes together with maps showing all the proposed improvements.

The master plan, when completed, is then presented formally to the city and county officials of the area for which it has been prepared. Temporarily, the state's work is then done. The next move is up to the city, which must review and act upon the state's proposal. Once city approval for the plan has been voted, the state reenters the picture by incorporating the plan description into the Highway Law and then starting work on the detailed construction plans and other necessary specifications and contract documents which will be required when specific phases of the work are ready for bids.

Advancement to construction stages of individual projects in any given community will be done in accordance with immediate traffic requirements and the financial ability of the city and state to pay for all the needed projects.

All construction costs involved in projects included in the state's master plan for any community will be borne entirely by the state. The only local expense involved is for one-half the cost of procurement of any rights of way which would be required, with the state also paying for the other half.

Full Local Approval Needed

To protect the principle of home rule and assure the city of all its rights and privileges, full local approval of individual construction plans must be given before projects can be placed under contract.

Work planned by New York State for its cities will be extended over a long period of years in order to progress it on a sound financial basis. Some arterial construction has already been completed. Other projects are shortly to be placed under contract, while still others are now in the design stage preparatory to submission to local authorities for final approval.

Funds available for urban arterial construction are being earmarked for each of the various cities of New York State in accordance with the formula governing allocation of federal urban-arterial-route construction funds among the different states.

A great program of face-lifting is in store for the arterial-highway systems of each New York State city. Rich dividends in improved transportation, better living, and more prosperous communities will result.

Westport Celebrates Shakespeare's Birthday

ON FRIDAY afternoon and evening of April 23, the towns of Westport and Greens' Farms, Conn., celebrated the birthday of William Shakespeare with a pageant and masque. "Queen Elizabeth," represented by Mrs. Kenneth J. Bradley of Westport, led the Royal Progress in the afternoon to the Westport Town Hall and attended a performance at the "Globe" Theater (Bedford Junior High School) in the evening.

At 4 p.m., the Royal Company assembled on the steps of the Y.M.C.A. At the Town Hall, the Town Crier informed the citizens of the Queen's approach through the main street of Westport, and warned them that "all geese, sheep, and pigs must not run at large; housewives will dump no slops in the roads through which the Royal Progress passes; no rude noises must be made, people must not gawk unseemly." Then, to the fanfare of trumpets, Queen Elizabeth, preceded by her Sword-Bearer, and attended by ladies and gentlemen of the Court and the Players of the evening, progressed to the Town Hall. There she was welcomed by First Selectman Emerson F. Parker on behalf of the towns of Westport and Greens' Farms, and a letter of greeting from the Mayor of Stratford-on-Avon, England, was read to the assembled company. Other events during the local civic celebration included the reading of an original poem in honor of Elizabeth and Shakespeare, the ceremonial planting of a tree, a program of Elizabethan music and the enactment of an original masque which included scenes from one of Shakespeare's plays.

MARY GRAHAM

Actors in the Shakespearean masque in the procession honoring Elizabeth.

Chicago Planning Course

ANNOUNCEMENT of an expanded program of education and research in planning, including the granting of a master's and doctor's degree, has been made by the University of Chicago. The approach of the program, under the direction of Rexford Guy Tugwell, is that planning is a distinct field of intellectual endeavor, with its own methodology, techniques, and instruments of operation.

On the staff under Professor Tugwell are Melville C. Branch, Jr., Harvey S. Perloff, William H. Ludlow, Edward C. Banfield, Jr., Martin Meyerson, and Julius Margolis. Further information may be obtained from the Secretary of the Program of Education and Research in Planning, Room 208, Social Science Research Building, the University of Chicago, Chicago 37, Ill.

Miami, Fla., Plans

The World's Largest Incinerator

A mammoth 900-ton incinerator will have revenue-producing features that will cover nearly all construction and operating costs

WITHIN the next few weeks the contract for the largest incinerator in the world will be awarded. Miami, winter playground of eastern United States, plans to build it and make it self-supporting. The per-ton figure of $2.50 to $3.00 that cities often must raise in order to burn the wastes created in normal living is not scheduled to appear in the Miami budget.

Miami is not building this huge incinerator to establish a world's record. Ray Williams, Director of the Department of Public Service, who laid the groundwork for the project, has sound reasons for selecting this size. The limitations imposed for this important municipal improvement are actually being turned into striking advantages.

Advantages of Imposed Location

Site location is one of these limitations. At present, Miami has a 350-ton incinerator that is being forced to receive and burn in a haphazard fashion some 800 tons of refuse per day at peak loads. This, Engineer Williams frankly admits, is little more than a gesture at good incineration and actually only partially burns the refuse before it goes to the dump as ashes. Nevertheless, this overworked incinerator is now operating on an 8-acre site, and the new plant will occupy an adjacent 10 acres. The city, then, will not have to overcome the psychological disadvantages that people build in their minds when they hear that an incinerator is to be constructed close to their homes.

Furthermore, the use of steam can be exploited at this location: near by is Miami's large city hospital, which needs steam for heating and powering many of its utilities. Also close by is one of the city's large water-works pumping stations. Steam that can be generated from the burning refuse can power the pumps used in this station. From these two sources alone will come a substantial portion of the revenue that will help defray the cost of constructior and operation.

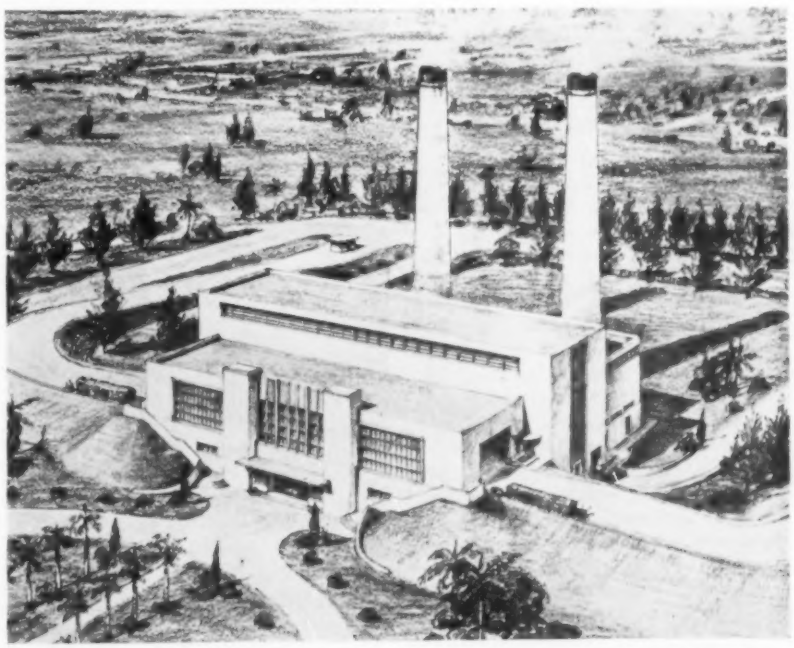
Revenue from Miami Beach

The plant will receive additional revenue from near-by Miami Beach and from private refuse-disposal agencies for the disposal of refuse through the incinerator. In fact, the city already receives revenue from these sources. Miami Beach, for example, with its area devoted so exclusively to winter resort purposes, does not wish to use any of this space for waste disposal, and consequently is better served by letting Miami burn it at a price of $3.00 per ton. In this fashion, the arrangement works to the advantage of both cities.

The incinerator design calls for automatic stoking and anticipates that the refuse will be reduced to 4% residue. The operation will proceed for the full 24 hours each day. A storage pit capable of holding 3,600 cubic yards will hold the refuse gathered in an 8-hour shift. Two cranes, each with 2½-cubic-yard buckets, will transfer the refuse to the incinerators. Heat from the incinerators will service three boilers capable of producing a total of 60,000 pounds of steam per hour (20,000 each). Space will be left in the design for an additional boiler if the need for steam increases.

The plant will be completely automatic in operation. All the work will be controlled from a single panel. Present cost estimates place the project at $2,200,000, including the boilers.

The plant is being designed by Moore and Owen, consulting engineers, Indianapolis, and by Maurice Connell and Associates, Miami.



An artist's drawing of the proposed municipal incinerator for Miami.

Fast Work in Criminal Identification

Aim is to furnish the Court with the complete criminal record when the prisoner is arraigned

CRIMINAL identification records should be of some interest to the record-keeping departments of all municipalities as illustrating records in emergency use. Tax and utility customer ledger cards come in for plenty of use periodically, but not mandatory immediate use. There's always time with them, and whether the Abbotts or Youngs are billed first or last makes little or no difference, as long as steady plugging makes the dateline for all.

Criminal identification calls for speed as well as accuracy. The Abbott or Young, Abbotino or Youngfriend who has been arrested may never have been heard of before by the police, or may be a reputable citizen. He must be brought to court promptly and bailed promptly if there is no record on which to hold him.

New York City's Department

Nowhere is the job of identification bigger than in the New York City Police Department.

There are four major records: (1) The master index consisting of 5,000,000 cards referring to 3,500,000 fingerprint records and about 1,500,00 aliases; (2) the identification record file; (3) the fingerprint file; and (4) the *modus operandi* file.

The index cards give name, alias, age, description, address, crime, and fingerprint class. The identification file consists of the criminal's history as known to the Bureau of Criminal Identification, a copy of his record from the State Department of Correction and the same from the FBI.

In addition to the "pedigree" sheets made out at the time of each arrest, there are photographs and cards showing where he is wanted by other police agencies. There will often be found a collection of clippings, for the Bureau clips news of its criminals.

If the name is not in the index file, the search is pursued through the fingerprint file by means of the class. Frequently the only thing to go on is his or her fingerprints. These are studied and classified into one of the 1,024 classes of the Henry System. All the fingerprint data have been punched into I.B.M. tabulating cards, and those of the group including the particular class —perhaps a thousand cards—are run through the sorting machine. Two or three cards come out for inspection. The dossiers covering these cards are taken out and examined.

The prominent place of aliases in the

Top: Index file of 5,000,000 criminals and aliases.
Center: Fingerprint file.
Bottom: *Modus operandi* file.

files and in the life of a detective suggests that looking up a name in a master index and then going to the identification file for the record is not always feasible. It may be a new name or a new alias and not in the file.

Modus Operandi File

If he's an old "friend," there's another file for nailing him—the *modus operandi* file. Here the photographs—in each case one of profile and bust and one full-length—are broken down into numerous crime classifications and subdivided further into a white, black, male, female, or deformity file. Each of these five is broken down into height and criminal specialty, such as "Burglary, 5 feet 7 inches." The specialty is further explained as to types of buildings and whether he is a day or night operator. Therefore, a type or classification would be "White, burglary, apartment house, 5 feet 7 inches."

How It's Done

When a precinct detective makes an arrest for a felony or serious misdemeanor, three sets of fingerprints are made: one for the State Department of Correction at Albany, one for the Department of Justice (FBI) at Washington, and one for the New York City Bureau of Criminal Identification file. All three copies are sent to the Bureau. If the arrest has been made at night, the prints and record are held for the daily lineup at 9 a.m., and the prisoner is kept in detention in whatever precinct arrested. In the morning, the detective calls for the prisoner at the station house and brings him to the lineup.

The detective goes first to the Photograph Gallery and reports to Captain Daniel C. Murphy, who furnishes him with two copies of the prisoner's criminal record and a pedigree form to fill out before photographing. He is also given a small index card showing the prisoner's numerical position in the lineup.

After interrogation at the lineup as to the crime and his previous record, the prisoner is brought back to the Photograph Gallery where bust and profile and full-length pictures are taken. Copies of the photographs are sent to the Bureau of Criminal Indentification the next morning, where the record is studied, classified, and placed in the *modus operandi* file.

The fingerprints are checked with the latent fingerprint file. If any match is found, the detective is notified, so that if the prisoner is discharged on the current charge, he is then charged with the crime or crimes in which the latent fingerprints were found. The fingerprints in the latent file are filed by classifications and are found by means of the I.B.M. cards in accordance with the pattern classifications.

When asked what is startling about the system, Captain Murphy said: "The accuracy and the speed. It takes a minute to classify, and the complete criminal record of the person, on a nation-wide scale, is furnished the court when the prisoner is arraigned." This becomes important in emergencies.

How to Build an Underground Dam

PHOTO COURTESY OF AWWA

Sealing work in progress on the Santa Ana river. This looks upstream from the canal intake. The dam is on the far bank.

THERE have been many dams built to control the flow of surface supplies. Now for the first time in the United States the flow of underground supplies can be artificially dammed by the controlled injection of emulsified asphalt into the ground water. Loren E. Blakeley, Consulting Engineer of Santa Ana, Calif., and Victor Endersby, Research Engineer of the Shell Development Company in Emeryville, Calif., discussed this in a paper before the American Water Works Association.

This system, known as the Shellperm method, was brought to the attention of a California state-wide council on water resources held in Sacramento. Authorities were convinced that it had potentialities, particularly in the Santa Ana region, where an important portion of the supply was flowing away. The work done in Santa Ana canyon used 75 tons of emulsion and saves 0.66 acre-feet of water per day.

The emulsion must be prepared so that it will "break," or solidify, even though not exposed to air. The process involves the injection into sand of a fine-grained emulsion of low viscosity, approaching that of water, using a chemical means of controlled coagulation.

The method provides a hydraulic barrier, not a mechanical solidifier. It has been widely used abroad. It has shut off water during construction of extensions of the Nile River dams at Assuit and Esna in Egypt, where 653 and 478 tons of emulsion were used. In Liège, Belgium, Shellperm method was used to keep contaminated groundwater from infiltrating into a potable water line.

An Understanding of Water Hammer

WATER hammer, explained S. Logan Kerr, consulting engineer and president of S. Logan Kerr & Co., Philadelphia, consists of differences in surge pressure resulting from stopping any given flow in a pipeline. The amount of the hammer depends on the diameter, thickness, and material of pipe construction. Mr. Kerr spoke before the American Water Works Association annual meeting in Atlantic City.

Once the flow conditions and size recommendations have been set up, maximum instantaneous water hammer can be calculated from tables Mr. Kerr presented. If allowances in pipe thickness appear so excessive as to increase the pipe cost unduly, potential savings may be realized by using a lighter pipe if proper water-hammer study is made.

It is possible to adjust valves to close in a matter of minutes rather than seconds so that effective time will be long enough to avoid an undue pressure rise. Automatic valves, carefully regulated to prevent rapid closing, will help check water hammer. However, special precautions should be taken to avoid slamming or hunting.

In case of pump discharge lines, standard allowances for water hammer should not be used.

Urban Development in Latin America

By ANATOLE A. SOLOW, *Housing and City Planning Specialist, Pan-American Union*

Puerto Rico Planning Board Exhibits Work At Inter-American Congress of Municipal History

FRANK T. MARTOCCI
Planning Board Consultant
Co-Author

THIS year the Third Inter-American Congress of Municipal History was held at San Juan, Puerto Rico, on Pan American Day—April 14. Since the history of municipalities is so intimately interwoven with the physical growth of cities and the expansion of urban areas, it is not surprising that the Congress devoted a large part of its agenda to city planning, housing, and the development of municipal services.

Inter-American conventions, bringing together outstanding people from all over Latin America, offer a stimulating experience to the locality where they are held, and at the same time present an unusual opportunity for the host country to put its best food forward and to show to the world at large its accomplishments. Using this opportunity to full advantage, the Planning, Urbanizing and Zoning Board of Puerto Rico, under the leadership of its chairman, Rafael Pico, presented an exhibit of its work which throws an illuminating light on the problems faced by Puerto Rican municipalities and the steps that are being taken toward their solution.

Latin America's economy and industry are expanding more rapidly than those of most other areas of the world. While the vast hinterlands are sparsely settled, economically underdeveloped, and lacking in transportation routes, masses of population are attracted to the urban centers. The rapid growth of cities offers a real challenge in the field of urban planning, housing, and municipal development. How this challenge is being met on an ever increasing scale by the national governments, municipalities, and private enterprise, is likely to be of interest to municipal administrators, planners, and engineers in the United States.

In this and subsequent articles, which it is hoped will be a regular monthly feature of *The American City*, will be shown some of the great strides in techniques of planning, public financing, and administration of municipal services, public utilities, and large-scale construction of housing projects which are taking place "south of the border."

In an island which is overpopulated, which possesses limited and unbalanced resources, and which is beset by many more ills than are typical of areas in the United States, the need for long-range planning is doubly necessary. In contrast to the United States, Puerto Rico's size and background, like that of many Latin American countries, make for centralization in planning. The scheduling and construction of many public facilities and municipal services, normally considered local responsibilities, are done by the insular Planning Board on the basis of Island-wide master plans. Nevertheless the Puerto Rico planning law and philosophy are basically American. The planning process is carried out in typically democratic fashion. Not only are all studies based on teamwork by engineers, architects, lawyers, sociologists, and geographers, but all plans are submitted to the people at public hearings.

One of the first steps of the former Governor of Puerto Rico, Rexford Tugwell, was to recommend the creation of a planning board which was approved by the Legislative Assembly in May 1942. In its six years of existence the Planning Board has made great strides. Four parts of the master plan have already been approved: hospital districts, a general system of roads, major thoroughfares for the metropolitan area of San Juan, and airports. In addition, Puerto Rico's Planning Board has adopted an excellent set of subdivision regulations—which have served recently as a model for similar regulations in Panama—and one of the most farsighted comprehensive zoning ordinances to be found anywhere. This ordinance has often been mentioned in United States technical literature because of its excellent density provisions, and because it includes for the first time "Rehabilitation Districts" in which new piecemeal construction is frozen, and improvements cannot be undertaken unless they follow development plans laid down by the Planning Board.

Large scale development of 5,000 houses, partially completed, forms part of an overall Island program for the major cities. The project falls in the area earmarked for expansion in the master-planning of the San Juan Metropolitan area. Project is divided into neighborhoods, each with a school, playground, and shopping facilities.

Exhibit Is Cross-Section of Island's Planning

The fourteen panels of the exhibit * presented in a strikingly simple and effective way, give a typical cross-section

* Henry Klumb and Charles E. Rotkin, prepared the drawings and photographs for the exhibit.

of urban planning in the Island. The exhibit is addressed to the people, and uses simple language to drive home the meaning of planning to the man in the street.

In Puerto Rico, as in the United States, the planner's number one job is urban rehabilitation and rebuilding. Several panels illustrate how slum clearance as well as large-scale housing on vacant tracts on the outskirts of cities follow along lines laid down by the master plan. An excellent example is the Puerto Nuevo project of 5,000 dwellings now under construction, which is designed as a group of integrated neighborhood communities. Other panels show several master plans for small municipalities, port and industrial development, recreation areas and tourist development, and the major thoroughfare plan.

It is hoped that this exhibit will be shown some day in the United States.

Pan American Union Develops Housing and City Planning Program

IT is a melancholy fact that in Latin America age-long neglect combined with intensive urban concentration has created an intolerable housing situation which is quite comparable in its extent to the housing shortage in war-devastated countries. A study made by the housing and city planning section of the Pan American Union estimates conservatively that about 25 million houses are needed to replace the extensive slums and blighted areas inhabited by some 100 million persons—two thirds of the population in Latin America. Even though housing activities are being expanded considerably in Mexico, Argentina, Brazil, Colombia, Venezuela, and Panama, at the present time low-cost dwellings are being built throughout Latin America at an insufficient rate—only about 10,000 units annually as a result of public and semi-public programs.

It is not surprising that housing and planning are beginning to have an increasing significance in Inter-American relations. The Pan American Union which, according to the charter drawn up at the fateful Bogota Conference during last March becomes the central permanent organ of the Organization of American States, maintains a housing and city planning research and information service. The purpose of the program is to promote the joint study of housing and urban development problems and of the technical, social, and economic means for their solution. Directories of housing and planning agencies in all American countries have been published, and bulletins summarizing current housing programs of various countries are being issued. A report will be released shortly on low-cost housing in the various Latin American republics.

The work is being expanded in the hope of creating in the Pan American Union the focal point where experience and information can be exchanged and joint research stimulated in the interest of advancing early solutions to the housing problems of the Western Hemisphere.

Mexico Improves Port Terminals

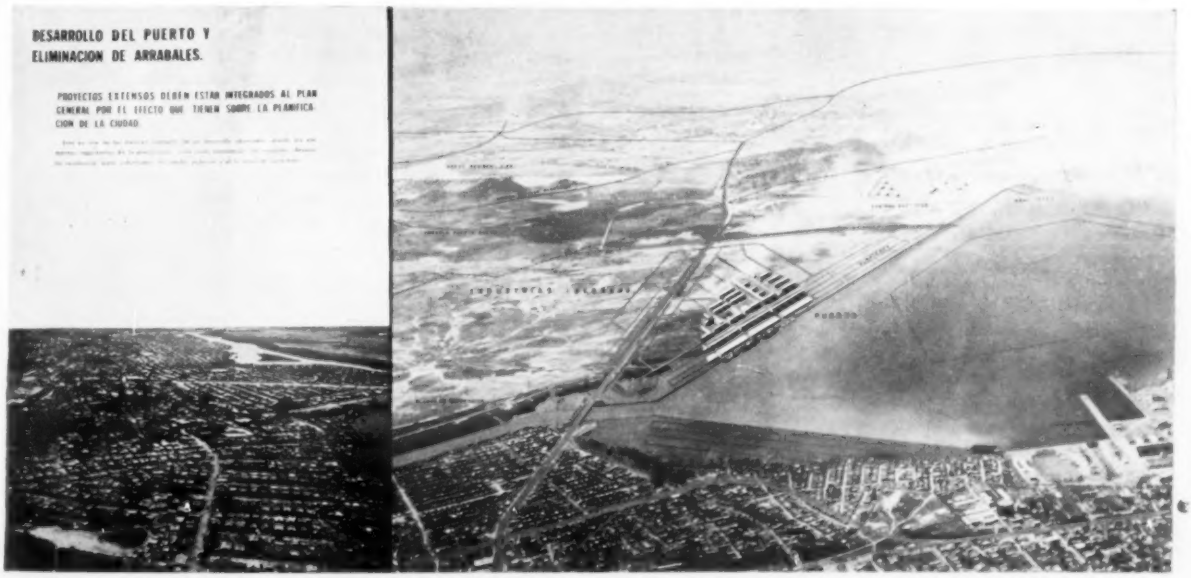
ACAPULCO, the historic port and most popular tourist resort, soon will have a new look. Mexico's Secretary of National Property, Dr. Alfonso Caso, has made public an improvement plan which will require the expenditure of 14,500,000 pesos (almost $3,000,000) alone during 1948. A coastal highway, a new water-purification plant, and a new business center including large business buildings, a series of shops, an open-air theater, and public baths are among the projected improvements.

A similar expansion plan allots 12,000,000 pesos for Veracruz, Mexico's most important shipping center. Among the civic improvements scheduled are a 500-bed hospital, a municipal slaughter house, a merchant-marine school, etc.

Argentina Improves Its Transportation

THE Public Works Ministry of the Argentine Republic has announced a large construction program to improve and develop transportation facilities.

The plans, which call for expenditures of $75,000,000, and for an immediate start of construction, include a tunnel with six traffic lanes under the River Riachuelo, and a coastal canal of 30 miles which will link Puerto Nuevo in Buenos Aires to a navigable branch of the Parana River.


DESARROLLO DEL PUERTO Y
ELIMINACION DE ARRABALES.
PROYECTOS EXTENSOS DEBEN ESTAR INTEGRADOS AL PLAN
GENERAL POR EL EFECTO QUE TIENEN SOBRE LA PLANIFICA-
CION DE LA CIUDAD.

This large project is tied in with the major planning elements, such as slum clearance, residential development, highway pattern and public facilities. The new port development provides for power plant, oil storage area, sugar facilities, new piers and warehouses. Slum clearance includes the well-known El Fanguito slum of 10,000 families. Note the new industrial pattern on both sides of Martin Pena Channel.

FRESH MEADOWS—New York Life's Big Rental

The project's planned community facilities represent a marked advance in institutional housing

Sketch showing how the project will appear when it is finished. Note the typical single-family housing at the lower left.

SAVINGS in the United States are becoming substantially less personal and more institutional. Of the institutions accumulating savings, the largest in terms of the amounts saved are life insurance companies. The size of these savings and where they are and may be invested are subjects dealt with in a revealing article by Stahrl Edmunds: "Outlets for Life Insurance Investment," in the *Harvard Business Review*, Summer 1947. The total savings for the decade 1937 to 1946, says Edmunds, came to $23.6 billion. The rate of growth is even more startling. In the same 10-year period the rate of growth more than doubled, and is running currently at about $3.5 billion annually. Edmunds sees no reversal of this trend, and expects in another decade the annual *increase* in investable funds of insurance companies to be around $6.5 billion. To help his readers grasp the size of these sums he likens the present annual savings to the equivalent of three complete TVA's or the combined industrial empires of Ford and General Motors. If his estimate of the annual savings in 1957 proves correct, that year's savings alone would equal the assets of the whole Pennsylvania Railroad and the Union Pacific systems combined, and enough would be left over to buy up the physical assets of the United States Steel Corporation.

Public Character of Investment Policies

It is clear that the investments of these tremendous annual accumulations take on a public character and will increasingly become matters of public concern. The consideration of public reaction is a factor in recommending large-scale rental housing as a major investment outlet. Moreover, building, owning, and managing residence properties embracing a whole neighborhood affords not only greater security but also a higher return than is available from mortgages. These factors together explain why investment of insurance funds in rental housing, amounting to $275 million in the spring of 1947, has been rapidly increasing.* Outstanding work in this field is being done by the New York Life Insurance Co., and its largest development is Fresh Meadows.

This development is a tract of 170 acres, formerly a country club, lying between Jamaica and Flushing in New York City's Borough of Queens. Ground was broken in October 1946, and in spite of material and some manpower shortage in the early stages the work has proceeded well. It is hoped that by Christmas of this year all buildings will be topped out so that winter will not hold up building operations. There will be 3,000 apartment units altogether, housing about 10,000 persons. Almost one-third of the total number of units were complete and occupied in May 1948. Rents as of May 1 ranged from $77.50 to $150 per month, including gas, electricity, refrigeration and heat, depending upon the number of rooms and the type of apartment and its location in the building.

Fresh Meadows is almost surrounded by communities of single-family detached houses with an average density of 11 families per acre. In the effort to blend the project into this setting all apartments, with the exception of 600 in the two 13-story buildings in the center, are grouped in 139 two- and three-story garden-type apartment buildings. Disposition and construction details of these low structures, along with a less than 15% land coverage and imaginative landscaping, make for spaciousness and an attractive residential atmosphere. An existing 6-acre grove of oak and maple is left undisturbed and increases the feeling of openness. The density of the residental area is about 17 families per acre.

It is generally agreed that a community within a metropolitan area, in order to possess the internal strength necessary to resist urban decay, must have at least two things besides adequate scale: a community shopping center and a good transportation connection. Fresh Meadows' shopping area promises to be unusually attractive. It is located at a corner of the development on Horace Harding Boulevard, and has provision for 1,000 cars on off-street parking lots. About a central park strip (dedicated by the company to the city) will be grouped, among others, the following stores:

- Supermarket
- Drug store
- Branch bank
- Branch department store (with 122,000 square feet of floor space)
- Branch of a nationally known "5 & 10"
- Motion-picture theater (with 2,100 seats)
- Bowling alley
- Post office substation
- Professional building providing office space for 18 doctors and 6 dentists
- Restaurant, banquet and meeting rooms.

Two other small centers for stores are provided for, one at the southwest and the other at the southeast corner of the development.

While the shopping facilities will

* George L. Harrison, president of the New York Life Insurance Co., estimated in April that life insurance companies have rental housing projects completed or planned for 200,000 persons and costing $400,000,000.

Development in the Borough of Queens, N. Y.

By JAMES DAHIR*

Spacious planning will make for attractive residential atmosphere.

thus be ample, the transportation connection poses problems as yet unsolved. Subway terminals are distant some three miles, and the public buses serving Fresh Meadows call for queuing up in the morning and evening rush hours. Management-owned and -operated express buses face legal as well as financial obstacles. There is hope, however, that a solution will be found. The ideal of nearby employment in decentralized offices or light industry remains a planner's dream only, and would not be acceptable to the residents of this section of New York. Not enough people, it seems, have been uncomfortable enough over a sufficient number of years in the journey to work to make the garden city idea a practical alternative.

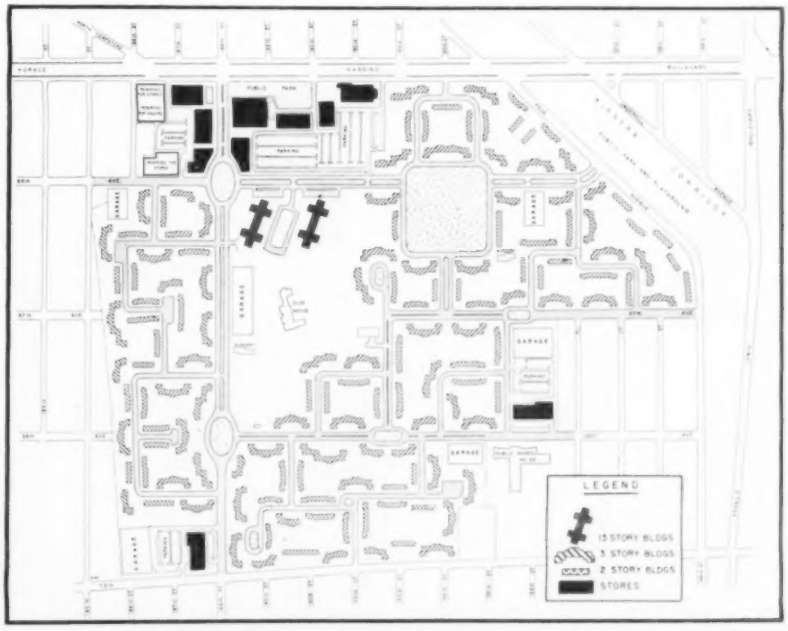
Family Needs Put First

The social planning of a complete neighborhood unit puts considerations of family needs first, and especially the needs of families with children. At Fresh Meadows, because preference has been given to veterans of World War II, the average age of adult residents is under 37 years, and the child population is large.

Whether the street entrance to the apartments is the "front" entrance is a current debate at Fresh Meadows. The small interior parks of the residence units are common green areas shared by some 60-odd families and will have walks, benches, a central paved space and probably special facilities for small children. Experiments are planned with the newer unit areas to discover the best uses and most desired arrangements and equipment. It seems to the writer that this amenity, along with the nursery school planned for the center of the development, represents the strongest neighborhood-building device possible. Especially in these home-adjoining, exclusively pedestrian green spaces devoted to the use of a very small resident population not likely to exceed 200 persons, and particularly dedicated to young children, intimate neighborly ties may be knit in this urban era, even in this most urban city of New York.

Recreation and Community Facilities

Recreation areas around Fresh Meadows include an adjoining public park of 500 acres on the east, and two public golf courses, neither of which is more than 1½ miles distant. However, play space for older children in the immediate vicinity of the home has not yet been definitely planned for. Exceptions to this observation are the six acres at one corner of the development which were donated by the company to the Board of Education for buildings and grounds of P. S. 26. The other is an ingenious plan to use the



Plot plan of the Fresh Meadows project.

* The author was compiler of *The Neighborhood Unit Plan—Its Spread and Acceptance*, a selected bibliography with interpretative comments, published in 1947 by the Russell Sage Foundation of New York. This article is part of a forthcoming book, "*How to Develop Your Community*," to be published by Harper & Bros.

roof of a large centrally located (heated) garage built into a sloping site. The back of the roof is on a level with the ground around it.

Common facilities include carriage and laundry rooms. The carriage rooms are conveniently located in basements with ramps and are also used for wheeled toys, sleds and bicycles. Laundry rooms are distributed about the development and are provided with automatic washers, spinners, and dryers. A 25-cent coin operates the washer, and the use of the other two machines is covered by this first charge.

Housekeeping Details Noted

The internal streets of Fresh Meadows are company property and responsibility, and the following small but significant innovation indicates the care being given to details. Galvanized cans for garbage (in the buildings without incinerators) and wooden boxes for milk bottles produce a jarring note in the otherwise parklike appearance of the streets. Now a two-sided cement screen about 24 inches high gives a clean look to the apartment entrance and a home base for two street-porch necessities.

Voluntary associations of residents are welcomed at Fresh Meadows. One evidence is *The Meadow Lark*, an 8-page independent weekly newspaper covering the news of the development and its immediate environs, edited and published by an individual living in the neighborhood. Another sign is the organization of a chapter of the American Veterans Committee, a recent meeting of which was addressed by the resident manager, James J. Boyle.

Community Center Studied

What to do with the club house in the center of the development is a question now being studied. It is ideally located for a community center and no doubt could be remodeled to serve as a much-needed meeting and recreation place for the many groups, both formal and informal, which the Fresh Meadows development will naturally create. The hesitancy of the management in making the clubhouse available is understandable. To drive for completion of the housing itself and the creation of good relations between management and the heterogeneous population of a small city seems task enough just now. Nevertheless, it may be held that a center for the convenient gathering of neighbors *as neighbors* can advance the planned community idea as far as the project's design has advanced beyond that of the conventional detached dwelling.

How do the residents of Fresh Meadows like their new homes? Although the development is alive with steam shovels, tractors, and trucks, a general summary of tenant reactions is not difficult to draw up. It falls into two dissimilar segments, depending on whether the young people come from hotel living or the doubled-up life so well-known to many newly married couples today. The few ex-hotel families naturally miss hotel services. The other group — the great majority—still finds the joy of independent habitations unalloyed. Doubtless they would find themselves that way with any kind of place of their own. We must conclude that the housing situation will have to be much more normal before resident reaction can be a useful gauge for community builders.

General Otto L. Nelson, Jr., is vice-president in charge of housing for New York Life. G. Harmon Gurney is chief architect for housing, and R. T. Gedgheegan is chief construction engineer for housing of New York Life. J. J. Boyle is resident manager, and Eleanor Mullins is in charge of community relations for the project. Rental consultants are James Felt & Co. Architects and engineers for the Fresh Meadows project are the New York firm of Voorhees, Walker, Foley and Smith. George A. Fuller Co., also of New York, is general contractor.

Savannah's

Low-Rent Negro Housing

THERE are 600 new two-bedroom homes under construction in Savannah in an area that has received careful planning layout and design. It has been dedicated to Negro housing. According to Norris Sherry, Savannah Building Inspector, these homes are being built according to carefully drawn building standards designed to give a full allotment of comfort to the family and to provide recreational facilities for the neighborhood. The houses are being built to rent at $30 per month or to sell at $4,200 on a $100 initial deposit, and are receiving neither federal nor municipal subsidy. They stand on their own feet financially as a good investment.

This housing-development area is the site of an old plantation and covers 100 acres. Each house is being placed on a lot 50 by 100 feet in size. There are 12 streets in the area. The purchase price for the house includes kitchen fixtures but does not include a heater. However, this means only a small increase in cost in the Savannah area.

The houses are being built without basements, which is typical of much of the housing here. They are being built solidly of concrete blocks and have a uniform floor plan. However, the exteriors are being varied, either in location on the lot or in some other way so that individuality will be expressed. The houses will have concrete floors covered with asphalt tile.

The city provides drainage and sewerage for the area and its portion of the street improvements. The city's investment in the development will be $250,000, which, officials estimate, will be returned in 12 years.

Members of many of the families purchasing these homes are workers in the Savannah factories. In these cases, credit unions and occasionally the factories themselves have agreed to carry the mortgage paper.

Norris Sherry represents the city in this housing improvement.

A view from the rear of a group of houses under construction, showing their varied placement on the lots.

The appearance of an individual house is neat and trim.

Truck-Crane Collection

REFUSE collection takes on major proportions in the resort city of Miami Beach where special problems prevail. Here, where palm trees are the rule, and beautiful, carefully tended yards and gardens are in evidence everywhere, there is always plenty of yard refuse to be removed.

To collect this refuse, City Engineer Morris N. Lipp uses 11 big, open-bodied semi-trailers, and loads them with a pair of truck-cranes with special wide-mouth buckets. Two of the semi-trailers hold 37 cubic yards; six hold 40 cubic yards; two hold 47 cubic yards, and one holds 57 cubic yards. In addition, for emergency use, he has nine box trucks that hold 25 cubic yards each.

This equipment is used to gather the yard refuse over the city on 10-day intervals. Each day they collect 700 cubic yards and haul it away for burning. Normally Engineer Lipp assigns three truck trailers to each truck-crane.

The trailers have a special self-dumping arrangement. A set of three chains are laid the full length of the trailer body and extend to the top of the forward wall. When the truck is ready to dump, the tractor is attached to these chains at the front end of the truck body. The tractor then empties the truck by pulling the chains.

Following high winds or hurricanes, when the debris is particularly plentiful, Engineer Lipp rents additional equipment of the same type from local contractors. After the last storm his crews collected 2,000 cubic yards of refuse per day for a two-week period, in order to return the city to its original tidiness.

A truck-crane picks up yard trash from the Miami Beach homes.

Here is the way the chains look when the empty trailer is ready to receive additional trash.

The operators unload the semi-trailer load of trash by a system of chains laid on the trailer bed.

Kansas City, Mo.,

Rehabilitates Its Streets

Brick-paved streetcar tracks came in for attention.

An application of "Shot-Crete" conditioned many of the curbs.

Work includes sidewalk improvements, using an asphalt-concrete surfacing

By STANLEY P. PALMER
Assistant City Engineer
Kansas City, Mo.

THE year 1947 saw a program of street improvements in downtown Kansas City. Most of them could be classified as delayed reconstruction, postponed because of the war. The changes made by the city, together with those for which property owners were responsible, have resulted in a virtual "face-lifting" for many parts of the congested area in Kansas City's business district.

The starting point for municipal improvements was a request from the Mayor and the City Manager for a study of the whole downtown district as to the condition of the streets, together with recommendations for needed improvements and repairs, and estimates of costs. Accordingly, the Engineering Division of the Public Works Department began laying plans late in 1946 for work to be done during the year 1947. The first step involved a comprehensive survey of 11 miles of downtown city streets, including detailed examination of sidewalks, curbs, street paving, and streetcar tracks. It was evident, early in the survey, that intricate problems were involved, since it was found that there were numerous areaways or basements under the sidewalks. Many of these projected all the way to the curb line. In the interest of safety, it was necessary to inspect each one of these areaways individually, measure it, and record its condition.

The detailed survey, when completed early in 1947, indicated the need for extensive repairs on the 11 miles of streets examined. An over-all program was suggested, in which costs would be met in three ways. Property owners were to be assessed for work on curbs and sidewalks on which their property abutted; the city was to pay for repaving of streets and drainage, and the Kansas City Public Service Company was to make the needed improvements in its streetcar tracks. However, the work required for the whole area was considerably in excess of the amount of construction possible in a year's time. The estimated cost—a total sum of $1,335,000—also exceeded the amount which could be financed within the year. Accordingly, a portion of the work rather than the entire amount was undertaken, a resurvey was made, and detailed plans worked out for repairs on 15 blocks. The City Council authorized an expenditure not to exceed $100,000 for this work.

Curbs and Sidewalks

Curbs and sidewalks needing repairs but not involved in areaway construction were simply removed and replaced with new concrete. New sidewalks are 4 inches thick; new curbs 8 inches by 20 inches. In a number of instances, however, areaways under the sidewalks were found to be unsafe. In these cases, the slabs were removed and replaced with new construction. This work was done by contractors for individual property owners rather than by the city's contractor. In other instances the areaways were structurally sound but the surface was in bad condition. Here the problem was to provide satisfactory surfacing over the existing slab.

Existing work was inspected by the city engineers to determine the type of resurfacing which had proved most satisfactory. Investigation indicated than an emulsified asphalt and small angular aggregate mixture had been the most successful method, and it was decided to use this type of resurfacing. In complying with the specifications, the contractor used a material called "Plastic Rock." The product, as used, was put up in packages containing the necessary amounts of emulsified asphalt and aggregate for 100 square feet of walk. To these ingredients it was necessary only to add water and mix, and apply it ¼ inch thick to the walk's surface. This proved a very satisfactory treatment. Put on one day, the traffic was kept off until the next.

In places where the areaway extended to the curb line and the curb had been poured integral with the sidewalk, the face of the curb obviously required a special treatment. In these cases, the surface of the pavement adjacent to the curb was removed to the top of the old base, and all deteriorated material removed from the face of the curb, which was then resurfaced with "Shot-Crete" (a mixture of portland cement and sand applied by the pneumatic process).

Throughout the district in which these repairs on curbs and sidewalks have been made, property owners, in previous years, had had considerable trouble with water leaks in the basements. In some cases, the gutter line had been patched to the top of the curb in an attempt to overcome this difficulty. However, the repairs to curbs

and sidewalks as herein described have apparently solved the problem, and complaints are no longer received about such leaks.

Street Work

The streets to be resurfaced were all between 20 and 30 years old. Surfaces of some of the most heavily traveled were of brick; surfaces of others were of asphaltic concrete. The surfacing material of these streets was removed. Where utility cuts had undermined the base or where it was in an unsatisfactory condition for other reasons, it was replaced with an 8-inch concrete base. The surface was replaced with asphaltic concrete varying in thickness in different locations from 2½ to 5 inches. Certain other streets, also carrying a large volume of traffic and having an 8-inch concrete base with a 4-inch asphaltic concrete surface, were found to be in good structural condition although the surface had become rough and uneven. For these streets a heater planer was used to remove 1 inch from the existing surface, and this depth was replaced with asphaltic concrete. In carrying out the work on these thoroughfares, it was necessary to meet the existing streetcar grades and curb grades.

Throughout the district repaired, it was found that many corners had as little as a 4-foot radius. Where there was considerable turning movement, corners of this type were cut back and lengthened to a 12- or 15-foot radius. It was also found that in numerous instances, a catch basin was located at the center of the radius, which made it necessary for pedestrians to walk through water following a rain. In all such cases, the catch basins were relocated at the ends of the curb returns, catching the water before it entered the pedestrian lane.

Streetcar Tracks

The Kansas City Public Service Company cooperated with the municipal government in this over-all program of street rehabilitation. The company removed trackage which had been abandoned, and repaved areas which had deteriorated or had become rough. The Public Service Company carried on their renovations at the same time that the city's work was being done, thus considerably shortening the time during which the public was inconvenienced.

Procedures and Cost

The city work for street rehabilitation was carried on under two contracts —one for the curb, sidewalk, and drainage work, and the other for the street repaving.

All curb and sidewalk repairs were done without blocking the entrance to any business, even for a short period. During the paving work, streets were kept closed for as brief a time as possible. Intersections were put in one-half at a time, in order to permit travel on the intersecting streets. Traffic through the alleys also was maintained at all times. While this involved a number of problems for the engineers, it was much appreciated by the business houses, since almost all merchandise is delivered through the alleys.

Contract prices for new curb or for curb repaired by Shot-Crete were $3.00 per linear foot. Price for 4-inch concrete sidewalk or for sidewalk resurfaced with Plastic Rock was 60 cents per square foot. The bid price for asphaltic concrete was $7.67 per ton; the removal and incidental work was paid for separately. Final cost for the street rehabilitation program as carried out was $95,000. The property owners' share of this amount was $48,000, and the City's share was $47,000.

A sharp sidewalk corner (inset) vanishes and a wider-radius curb takes its place.

Before-and-after photos of a sidewalk. The new surface has Plastic Rock finish.

Tennessee Studies Sanitary Service Charges

Discloses that revisions in rate-making and business administration are long overdue

By CHARLES L. CRANGLE
State Planning Technician
Tennessee State Planning Commission

THE cities and towns of Tennessee, in common with most throughout the nation, found themselves faced at the end of the war with the problem of providing war-deferred repairs and maintenance for public works as well as new construction. At the same time, they were confronted with increasingly tight municipal budgets as the result of inflated costs.

Faced with this dual problem, Tennessee officials within the past year have shown increased interest in placing all possible community services on a self-sustaining basis. Municipal sanitary services were among the first to be considered. This, of course, presented the need for a study of existing financing methods.

During the spring and summer of 1947, a number of municipal officials brought this problem to the attention of the State Planning Commission. Since the interest was manifestly strong and the problem a timely one, this office agreed to make such a survey. The Commission was fortunate in that the study had the active support of the Tennessee Municipal League. The League took responsibility for mailing the survey form to its members, and it was largely owing to its efforts that the initial returns on the questionnaire were so high.

The survey demonstrated that water service, by and large, is a municipal responsibility in Tennessee. While a number of private water systems do exist in the state, the majority are of small size, the Chattanooga City Water Company being the outstanding exception. Private systems serving municipalities are generally of two types: those found in so-called "company towns"—communities devoted to a single purpose such as lumbering or textile manufacturing, where the system as well as a majority of the housing is owned by the business interest which provides employment—and those developed in small communities by one or more of the wealthier citizens in order to provide a desired service and to realize a profit on the investment. Charges in the company towns are likely to be low because the industry often subsidizes major improvements, the rate covering only the upkeep of the system. Many of the privately owned water systems are extremely elementary affairs. Rates levied by these private companies are regulated by the State Railroad and Public Utilities Commission.

15% Use Flat Rate

Only 15% of the communities studied lack of meters and employ a flat charge. With a single exception, all of these towns lacking meters have a population of less than 3,000, and in a majority of cases the systems are publicly owned. Only six privately owned systems fail to meter their water.

Wells and springs form a majority of the state's water supply sources, 77% of the communities studied being supplied in this manner, while streams and lakes account for only 15% of such sources. The remaining 8% of water supplies reported comes from impounding reservoirs or from other communities or private systems. Authorities consulted during the basic research on this study generally seemed to agree that the cost of supplying 2,500 gallons of water to a customer in a community of less than 1,000 population should average between $3.00 and $3.50 per month. No community of this size in Tennessee met this figure. The average bill for reporting communities in this population bracket is $1.74, while the actual charges range from a low of $1.00 to a high of $2.75.

Within the established population brackets, the following minimum charges were found to be effective:

1. 1,000-3,000 population: 42 reported charges ranging from $1.00 to $3.00.
2. 3,000-5,000 population: 22 reported charges ranging from $.94 to $1.75.
3. 5,000-10,000 population: 15 reported charges ranging from $1.00 to $2.25.
4. 10,000-35,000 population: 8 reported charges ranging from $.90 to $1.36.
5. The four cities of over 35,000 reported charges ranging from $.60 to $1.00.

The study indicates that both rate schedules and business practices have long been badly in need of an overhauling. Water rates in Tennessee are, generally speaking, exceedingly low, as the foregoing discussion shows. One reason for this situation is failure to consider the cost of service in preparing the rate schedule. A number of communities appear to have determined their rate schedule in a most casual manner, simply obtaining the schedule of a near-by community and employing it. Sometimes the neighbor from whom the rate was adopted had a population of as much as three times that of the town copying its rate, without analysis of operation. Other communities seem to have based their rates on what they felt the citizens would be willing to pay.

Rates Favor Industry

Tennessee's desire for new industries is mirrored in the extremely favorable industrial and commercial water rates that in some cases amount to outright subsidy. In a majority of communities, water is supplied to the department of the city government at no cost, this practice being justified by the local officials with the argument that the water department is part of the city govern-

PHOTO COURTESY OF TENNESSEE STATE HEALTH DEPARTMENT

The Lebanon, Tenn., sewage treatment plant, typical of those studied above.

ment, and therefore the city should not pay for water service. Few cases of hydrant rentals were found. Although the right to levy a hydrant-rental charge was often given to the water department, in most cases the charge was not collected.

The practice of making some sort of contribution to the general fund in lieu of taxes is widespread in those communities where a surplus is accumulated. The Tennessee Municipal League, in a recent study on this practice in the cities of 5,000 to 25,000, reported that eight of the 19 cities transferred amounts ranging from $4,000 to $96,747 from their water department funds to the general fund during the past fiscal year.

The majority of water rates now in effect in the state are found to be of comparatively recent date, even though they are seemingly insufficient to meet present needs. Of the 101 community water rates contained in the 140 replies received, the average went into effect in 1937. The earliest of the rates still in effect was adopted in 1909. Fifty-six per cent of the reporting communities had rates established prior to 1941, but only 16% employed rates effective prior to 1929.

Sewer Charges

The Tennessee State Health Department's Division of Sanitary Engineering reports that 115 communities in Tennessee have public sewerage systems. Ninety-two of these communities responded to the request for information on their charges for this service.

Roughly 90% of these systems discharge their wastes into running streams. Drainage canals are frequently employed for this purpose in West Tennessee, where streams are less common.

Of the 92 communities polled, 42% give no treatment to their sewage before discharging it, while 50% administer primary treatment. Only 10 cases of satisfactory secondary treatment were noted, indicating that over 90% of the sewer systems of the state pollute streams to some degree.

Employing the same population brackets as in the water-system tabulations, the following conditions were found to exist:

1. 1,000-3,000 population: 37 communities reporting: 14 employed no treatment; 27 administered primary treatment.
2. 3,000-5,000 population: 21 communities reporting; 7 employed no treatment; 11 administered primary treatment; 3 gave secondary treatment.
3. 5,000-10,000 population: 15 communities reporting; 7 employed no treatment; 3 administered primary treatment; 5 gave secondary treatment.
4. 10,000-35,000 population: 8 communities reporting; 7 employed no treatment; 1 gave secondary treatment.
5. Over 35,000 population: 4 cities reporting; 4 employed no treatment.

Thirty-seven per cent of the cities polled in this questionnaire indicated that they make some sort of charge for sewer service. However, few of the charges bear much relation to the cost of service and treatment. Nine of these charges took the form of an initial connection fee alone, the fee ranging from $5 to $50. Twenty-six communities make a sewer-rental charge to residential customers, and in every one of these cases a commercial and industrial charge is also levied. These charges were found to be of four general types:

1. A flat charge of a certain amount per month, with $1 the most popular figure, although charges range from 50 cents to $1.50.
2. A charge based on a percentage of the water bill, accompanied in one case by a service charge of 60 cents per month. The amount of the bill in these cases ranged from 15% with a $1 minimum charge to 50% of the monthly water bill.
3. A regular rate schedule based on the amount of metered water consumption (employed by only two communities).
4. A rate based on the number of conveniences installed.

Commercial and industrial rates are ordinarily the same as the residential rates. Only three of the 92 communities reporting gave a separate rate for business use, two of these cities employing a flat rate based on the type of business, and the other, a small community, using a rate schedule for factories and institutions based on the number of employees.

Revenue bonds dependent exclusively on sewer revenues cannot ordinarily be sold at as low an interest rate in Tennessee as can bonds secured by a pledge of both water-works and sewer revenues, or as general obligation bonds. Under term of legislation enacted by the 1947 General Assembly, communities now can combine the water and sewer charge where both are owned by the municipality. No Tennessee city with a population of over 10,000 has issued sewer-revenue bonds, and the two towns with a population of under 1,000 which have issued bonds for this purpose have combined them with water bonds.

Garbage Collection Charges

Of the 117 communities reporting on garbage collection, only seven communities make a charge to residences and only eight to business enterprises.

Of the seven reporting residential charges, four set rates at $1 per month, the others ranging from 50 cents per week to $5 per year. The business charges were less similar; one reported a charge of $1 per week, one of $1 per month, and one of $10 per year. Four base the charge on the amount of refuse collected. One community charges 15 cents a can with a $4 monthly minimum; one makes individual contracts with charges varying from $2.50 to $10 per month; and two employ a quarterly charge ranging from $5 to $15, depending on the average size of the collection.

While garbage collection charges are unusual in Tennessee, 61% of the communities polled provided collection service to the householders, and 66% service business and commercial enterprises. This study, of course, covers public services only and does not indicate, except in a negative manner, the number of communities dependent on private collection systems. It is, however, safe to say that some type of garbage and refuse collection exists in all Tennessee communities except the very small ones.

PHOTO COURTESY OF NASHVILLE CITY WATER WORKS DEPARTMENT

An aerial view of the Nashville, Tenn., water-treatment plant.

The City Tells Its Story

By HENRY DAVIS NADIG, *Director of Public Relations, New York Regional Plan Association*

Achieving an MPR Concept

MUNICIPAL public relations is the conscious official use of practical methods expertly applied to produce a fully informed, understanding, active citizen interest in local government.

That is a functional definition. It is something you can sink your teeth into. It connotes action. It provides a basis for operation. It means work.

Conscientious municipal officials throughout the United States are continuously concerned about the apathy of their respective local publics. Again and again they make efforts to rouse public interest. Again and again they get the same indifferent response—with a few exceptions now and then. Why?

Two reasons: (1) Complacency, which breeds indifference; (2) Lack of knowledge, which brings misunderstanding.

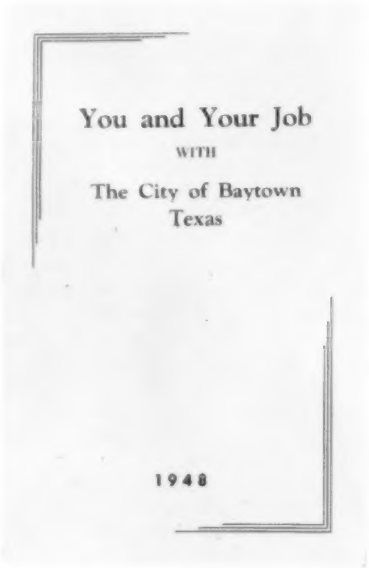
Any municipality can overcome these two negatives by the adoption and application of a practical municipal public relations policy. Where municipal officials realize that the functional concept of municipal public relations provides them with the best means to gain public interest and action and where they understand the scope of MPR and coordinate all its phases to a working program, they are bound to be successful in eradicating public indifference and misunderstanding.

However, the results obtained to date in our municipalities are much less than half as good as they could be if the usual unintegrated, uncoordinated approach would give way to a truly purposeful MPR policy.

Nothing could document in a more timely fashion the point I am trying to bring home than the very excellent paper on "Organizing the Community for Coordinated Action," presented by City Manager C. A. Harrell of Norfolk, Va., at the recent National Conference on Community Improvement and which appears, in abbreviated form, on the opposite page.

Organizing the community for coordinated action, I submit, is wholly a problem of municipal public relations. It is not partly public relations and partly something else. One of the functions of MPR is to promote active citizen interest, which essentially is citizen participation (a word we ought to replace with the word "action"), and which is Number seven in our ten tests of MPR.*

Mr. Harrell's paper shows how strongly he believes both in public information and public participation. He points out that "we have created 27 advisory and administrative boards and commissions in Norfolk."



The simple cover of Baytown's manual of city employees' responsibilities.

My point here is that the very creation of these advisory and administrative boards and commissions is an act of municipal public relations. It is logical, consistent, and practical that these boards and commissions be integrated with a clear-cut MPR policy.

Norfolk is one of the seven or eight cities in the United States that seem to be advancing most effectively in municipal public relations. It is to be hoped that they will move forward soon to the point at which we can say that official MPR is beginning to show a sound pattern which can be taken up and adapted to their own needs by other cities, much as the city manager movement itself has taken root.

Employees' Manual

City Manager Bill N. Taylor of Baytown, Texas, has sent along a copy of what is believed to be the first municipal employees' manual to be adopted by any city in Texas. It represents "a pioneering development in the state of Texas," according to Mr. Taylor.

"It is the end product of a great deal of research and study on the subject of employee relationship and municipal public relations," he writes.

Of special significance is the official recognition of the importance of public relations to a city government, as evidenced in the following statement on page 25 of the manual:

"It (municipal public relations) is at once the most important phase of municipal government administration and easily the most neglected."

City Manager Bill Taylor appears to be in the forefront among city managers in recognizing this fact.

Open House At Hammond

It was business as usual Monday evening, June 7, at the City Hall in Hammond, Ind., for every city department. The occasion was a City Hall Open House, intended to bring the city government closer to the people—and the people closer to their city government.

From the Mayor's office down through every city department, officials were at their desks and all departments were functioning as usual. Not only was regular business in order, but special opportunity was provided the public for making suggestions for city improvement. Neighborhood problems were noted for future action by the officials concerned.

As citizens of Hammond came to their City Hall, they found the City Clerk's office open for registration of voters, the City Court holding session (transferred from the regular Monday afternoon session), the City Plan Commission in regular meeting. They had an opportunity to see movies on traffic in the Police Department and they could talk with their Councilmen in the Council Chamber, and if they had some special problem, they could talk with whatever department head the problem concerned.

Mayor Vernon C. Anderson believes that his administration's City Hall Open House was a unique step in improving relations between the city government and the public. The move was certainly good municipal public relations and should pay off in renewed citizen interest in city government and clearer understanding of city business.

* See THE AMERICAN CITY for May 1947, page 82.

Organizing Communities For Coordinated Action

By C. A. HARRELL
City Manager, Norfolk, Va.

THE fate of our democratic way of life is irrevocably wrapped up in the interest and vigor which the American citizen displays in his government. . . .

America is the greatest democracy in the world, with the best educated electorate, and yet the proportion of citizens who take the trouble to vote or to participate actively in civic affairs is lower than in any other democratic country. . . .

As of July 1, 1946, the U. S. Bureau of the Census estimated that almost 92,000,000 people were qualified to vote in this country. In the national election on November 5, only one-third took the trouble to go to the polls. In the last municipal election in Norfolk, the most hotly contested in recent years, only about 50% of the qualified voters registered their choice.

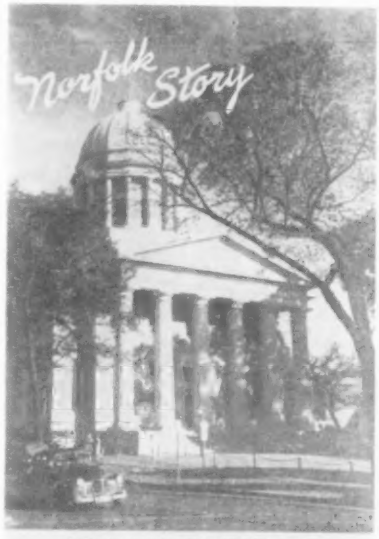
Contrast this sad exhibition with the tremendous popular vote which was expressed by the people of Italy in their recent election, or with the fact that voting participation in England is ordinarily 50% greater than in the United States.

In the day-by-day operation of our local communities, apathetic citizens threaten to undermine the very core of liberal representative government. . . . Paradoxically, the solution to this problem has been known and discussed for years, and yet, for the most part, we are no closer to making it a reality than ever.

The Solution and How to Effect It

In short, the solution is this: The community must be organized for effective, intelligent action; the citizenry must be properly informed of the need for civic participation; citizens must be taught to exercise their rights and to treat them as sacred duties, not merely to accept them as privileges. . . .

In large part, the solution is closely connected with effective public relations. . . . In Norfolk, we recognize keenly the need for this type of action. In an attempt to coordinate citizen response, we are making use of every information medium available. We issue an interesting annual report, we have a weekly radio program, we distribute leaflets occasionally and cultivate the newspapers in order to have the most complete coverage. City officials make frequent appearances before civic groups to talk about municipal problems. Council meetings are often broadcast over one of the local radio stations. We are also inaugurating a weekly newspaper column in which the City Manager will answer questions posed by citizens during the preceding week, and we have begun the filming of a motion



picture of the city which will point up to all our citizens the goals which we are trying to achieve.

Envisioning the long-range aspects of the problem, and feeling that the public schools do not adequately treat the immediate aspects of citizen-government relationships, we have instituted a series of talks before high school civics classes in which we try to set forth the basic functions of the local government. Following these lecture presentations, pupils are brought in a body to City Hall, where they are led on a tour of the various city departments in order that they may see for themselves their government at work. . . .

We are proceeding upon the basic promise that intelligent citizen action cannot, and will not, be forthcoming unless the people are adequately informed of the over-all objectives which lie before them. For, if understanding does not, in itself, breed cooperation, it at least delimits the area of indifference, suspicion or distrust. . . .

Adequate information, however, is not in itself sufficient to create an able, intelligent electorate. The way must be paved for actual participation. In this connection, we have created 27 advisory and administrative boards and commissions in Norfolk. Well over a hundred persons serve free of charge on these boards, giving amply of their time, knowledge, and experience. Governmental problems are thus considered in detail by citizens acting in a semi-official capacity. The Council, of course, is not bound to follow recommendations which are submitted, but the suggestions offered by these boards are always accorded serious consideration. Coverage ranges from hearing zoning appeals and giving plumbers' examination to preparing a program for mosquito control, or studying the adequacy of higher-education facilities in the community.

We have found that many of our citizens are eager to serve in these capacities. Not only does it help in so far as public interest is concerned, but it also aids us in performing our job better. The net result is a better-equipped legislative body and an electorate which is convinced that it is able to proffer its own solution to governmental problems.

Last year, we were faced with the serious problem of overhauling our tax structure. Always a ticklish situation, it put us momentarily at a loss as to how to resolve our difficulties. The problem was certainly one which demanded intensive study over a long period of time, and hence the Council decided that some outside group would have to be consulted prior to taking decisive action. In the final analysis, the Council appointed a tax commission composed entirely of inhabitants of the city, who gladly undertook the task. The Commission, working gratis, studied our tax structure for more than a year and submitted numerous recommendations to the Council, many of which were adopted.

Another excellent example of the way community organization can be effected may be cited in connection with the work of our Norfolk Disaster Committee. Charged with the responsibility of constructing a broad plan which would be geared to fit varying types of major catastrophies, the Committee has been able to elicit a remarkable degree of cooperation from all elements of the citizenry. . . .

For the most part, the community can be successfully organized only if a deliberate educational program is first inaugurated — a program designed to inform and explain, to point up objectives and to create a basic understanding without which no campaign can be successful.

(*Continued on Page* 131)

From a paper presented before the National Council for Community Improvement, in Washington, D. C., May 26, 1948.

Techniques for Street-Flushing, Sewer-Cleaning

▲ More than 100 went for a ride on the New Rochelle harbor launch.

▶ Ray Murphy, City Engineer, Rye, N. Y.; Don Herrick, executive director of the American Public Works Association, Chicago; Arthur Richards, Director of Public Works, Larchmont, N. Y., and Ed Cleary, executive editor of the *Engineering News-Record*, Eastern, vice-president of APWA.

◀ John Hood, Ridgewood, N. J. (right), main speaker in the afternoon program, gives more details on his copper-sulphate-treatment method for keeping sewers free of roots.

▼ Trying out a Davis gas mask.

WHAT was probably the first public demonstration in the United States of street-flushing with the aid of synthetic detergents took place at the May meeting of the American Public Works Association, New York-New Jersey Metropolitan Chapter, held in New Rochelle, N. Y. The demonstration was conducted with the aid of a flusher furnished by New York City's Department of Sanitation through the assistance of William J. Powell, Commissioner. Assistant to the Commissioner Ed Donnelly was on hand to direct its operation. The detergent used was Naccanol, supplied by the National Analine Division, Allied Chemical and Dye Corporation, New York City. Dr. O. M. Morgan and Dr. Gilbert Tonne of Allied Chemical and Dye were on hand to observe the results.

The addition of the detergent, with its superior wetting powers, enabled the flusher to clean away such grease and grime that resisted the ordinary water. Members in attendance spoke of its usefulness, particularly in areas where oily pavements on various heavily traveled ways, taxi areas, and parking areas produce a problem. Six pounds of Naccanol were added to a 2,500-gallon flusher tank.

How to overcome the root problem in sewers was another feature of the meeting. This was discussed by John Hood, Superintendent of Sewage Treatment in Ridgewood, N. J. Superintendent Hood recommended placing about two pounds of copper sulphate in the inverts of the sewers at the manholes, and also obtaining permission from the various residences to flush two pounds of copper sulphate down the toilet bowls at about six-week intervals. This, if done during periods of low flow, kills the root growth and allows the sewer to remain clear and fast-flowing. Superintendent Hood reports that no damage results to the trees or to the ensuing sewage-treatment process.

◀ The street flusher makes a trip with the tank carrying 2,500 gallons of water and 6 pounds of Nacconol.

▲ A street flushed with plain water. Notice the splotches where the oil and grime resist the water.

▶ How the street looked after being flushed with Nacconol and water. Notice the even film of water that completely removed water-repellent oil and grime.

New York City's Assistant to the Commissioner Ed Donnelly, left, confers with New Rochelle's Director of Public Works, E. T. Cranch, on the flusher demonstration. ▼

On demonstration also were recommended practices in tree-trimming and in weed-control work. This was a feature of the New Rochelle department of Parks, Docks, and Harbors, under the supervision of Charles Broder, Manager. Director of Public Works E. T. Cranch also put on display the New Rochelle public-works yards and its incinerator with the Morse Boulger incinerator units. A popular side feature was an inspection of the harbor facilities in the New Rochelle harbor-patrol boat.

The meeting, which broke attendance records for the Metropolitan Section, was conducted by E. T. Cranch, Director of Public Works, New Rochelle. Manufacturers exhibiting at the meeting included the Davis Emergency Equipment Company, New York City; Homelite Corporation, Port Chester, N. Y.; and Edward Ehrbar, Inc., New York City.

D. B. Sweaney, Weirton's City Manager

Weirton, W. Va.—

Seventeen Hectic Days

By DANIEL B. SWEANEY
City Manager
Weirton, W. Va.

WEIRTON, W. Va., a one-year-old "baby" among American cities, is doing just fine, thank you. The story of the 17 momentous days in which the new city was "put together" in 1947 is probably unparalleled in the history of municipal government. Overnight the "largest unincorporated town" in the United States became the fourth largest city in West Virginia. The 1950 census is expected to show over 35,000 population.

Thirty-nine years ago Weirton was a peaceful cornfield down in the valley between the wooded hills and the Ohio River in the state's northern panhandle. The new mills of the Weirton Steel Company sent forth their first red glare against the night sky in 1909, and the town of Weirton grew. The location was a good one for industry and the firm prospered. It now employs 12,000 men and women.* Three other towns came to life around it—Holidays Cove, Marland Heights, and Weirton Heights. Eventually those three were separately incorporated, but the Weirton people seemed content to let the steel company manage the town and provide the water, street lighting, fire protection, and other necessities of municipal life. The community was policed by the Hancock County Sheriff and his deputies.

Early in 1947, a group of civic-minded citizens, organized into a Community Service Council, began promoting a campaign for the consolidation and incorporation of the four communities in the Greater Weirton area into one municipal government. A similar movement a few years earlier had failed because public interest and support was lacking. This time, however, the people were convinced of the advantages of a consolidated city government for their sprawling communities.

Rapid-Fire Organization of City Government

In a special election, April 1, 1947, the incorporation was approved by a landslide vote. On May 6, the primary election was held. On June 3, the citizens of Weirton went to the polls for the third time in four months and elected Thomas E. Millsop, president of the Weirton Steel Co., as Mayor for a four-year term, and five councilmen. Then things began to happen—the city fathers were faced with the necessity of having the city government completely organized and ready to go on July 1.

In the 17 days from June 13, when the Mayor and the City Council first met as an unofficial body, to July 1, when Weirton attained city status, there was little time to dawdle. The Mayor and the Council approved the provisional appointment of Daniel B. Sweaney as city manager; organized a 25-man police force, trained by the FBI; formed a three-company fire department; wrote an administrative and criminal code; set up a schedule of city licenses; drafted ordinances providing for the creation of a Civil Service Commission and pension funds for the police and fire departments; arranged for interim expenditures and financing pending consideration of the city budget; decided on appointments of a police chief, police judge, city attorney, city physician, city clerk, city treasurer, city engineer, fire chief, and building inspector, and set up a five-man city planning commission — all in one breath.

In the second breath, the new city solons organized a street department, accounting department, a department of sanitation, and a traffic commission, and made plans to take over a water system, a sewerage system, and a street-lighting system. For use as the City Hall, they arranged to rent from the steel company a fine modern two-story building, which houses the fire department and city offices downstairs, and has additional offices and a police court upstairs.

Financing of Improvements

With its basic organization determined, the city government began concentrating on its finances and how to pay for improvements. The original budget estimate was $272,000. With licensing fees, fines, and income from special services such as garbage collection added to taxes, the accounting department now estimates the first year's income at approximately $340,000. Starting from scratch, with no cash or debts, the city bought $50,000 worth of street and refuse equipment and accumulated a $45,000 surplus strictly from income in its first nine months. This surplus is now being spent to layer-treat a portion of the 13 miles of unimproved streets within the incorporated area of 13.8 square miles.

Taxes are limited by state law to 12½ mills on personal property; 25 mills on real estate on which the owner resides, and 50 mills on industrial property and property used for income.

* The city is a miniature "one world," colored by the customs of 36 nationalities whose people have worked together in peace and harmony for about four decades. No work stoppage of any kind in the Weirton mills has occurred for 15 years.

Some of Weirton's newly purchased street equipment.

and Their Sequel

One-year-old city, born from consolidation, has extensive and business-like improvement program

Thomas F. Millsop, Mayor of Weirton

Mayor Millsop visits City Hall every day he is in the city, and receives a complete report on city finances every Monday morning. No one is permitted to handle a complaint of any kind at City Hall except the City Manager or Mayor Millsop. Every complaint is reduced to writing; the record of the complaint and the action taken is given to the council and the press at the regular or special meeting.

Mayor Millsop is turning back his entire annual salary of $500 to the city treasury, except for $1 which he is keeping as full payment for his four-year term. But, because of the high salary bracket in which he is placed as president of the Weirton Steel Company, the government even took 91 cents of this, which probably sets a new low record for take-home pay.

Civic improvements have been many since the new Weirton government was organized. A $250,000 sewer project and a $750,000 water-works project, both to be financed by receipts, are under way under the City Manager's supervision. The present municipal water works now serves only a part of the city, and the city is making an effort to consolidate the four privately owned water companies operating within its limits.

New Equipment Purchased

Over 100 new street lights have been erected to light areas that were never lighted before. Starting with three men, the street department has been expanded to 18 men and a street superintendent. Among the equipment bought and paid for are the following: a Meili-Blumberg power grader and street marker, a war-surplus 10-ton Galion roller; a chip-spreader; a Standard Steel Company tar distributor; snowplows; a cinder spreader, and an Elgin sweeper.

The Department of Sanitation, with 15 men employed, operates four completely enclosed Leach motorized Refuse-Getters. Garbage and refuse are collected on a weekly basis for a fee of $10 per year. An incinerator within the city limits has been dismantled and the dump covered. The city is now using a sanitary fill on the outskirts of town. An exterminating company killed 150,000 rats at the site of the old dump.

The Planning Commission has been an active group. There were 192 duplications of street names when the four communities were consolidated. The streets have been renamed and new all-weather aluminum street markers have been ordered from the Lake Shore Pattern Works at a cost of $5,137.50. More than 250 building permits have been issued, totaling $1,058,000 in new construction. The three-man Traffic Commission has completed its recommendations to insure safe movement of traffic and the establishment of parking limits, loading zones, and other regulations.

Business Attracted to City

Many new business enterprises have been attracted to the city since incorporation. Main Street has undergone a complete face-lifting with new store fronts, and many new store and office buildings being erected. A new factory has been constructed and is in operation, and two new industries are expected to move to Weirton this year. Weirton's inland industrial port on the Ohio River has been exceptionally busy.

Last February, a building-fund drive for a $1,000,000 Community Center building was oversubscribed in two weeks. A recreational director has recently been appointed to take over operation of eight playgrounds from the Community Chest. Two more are being added and a $15,000 lighting system is being erected on one of them. With two country clubs, a beautiful city park and swimming pool, and numerous playing fields, Weirton has no shortage of recreation facilities.

Though Weirton is in its infancy as to age, the city's accomplishments and forward-looking program rival those of many much more "adult" communities.

An aerial view of the city's main industrial plants.

Long Beach, Calif.—

Sewer Ball Cleans Lines

Tests with a beach ball develop a method that keeps sewers clear and free-flowing

By ROBERT E. KENNEDY
Statistician, Pipe Line Division
Long Beach, Calif.

THE fact has been well established in sewerage practice that clean lines are an important factor in sulphide control, and that sulphide control is vitally important if the system is to be free of odor nuisance, and the sewage is to be treated without difficulty and damage to its lines.

This city has a very definite problem involving just that. In the eastern part of this city, many of the concrete lines were deteriorating because of high sulphide concentrations and heavy sludge deposits. Some methods were necessary to rid the lines of these deposits and arrest the deterioration as quickly as possible.

The Los Angeles County Sanitation Districts inaugurated a line-cleaning program involving the use of a common rubber beach ball. The practice was to inflate the ball and enter it into line, causing a head to be built up within the upstream manhole. The resulting head of water forced the ball through the line, washing the sludge ahead of it.

The difficulty was that once the ball started moving, there was no way of controlling it; it might become stuck in the line and nothing short of puncturing the ball would move it. Also, it was subject to puncture by all types of debris such as wire, razor blades, and glass.

Long Beach adopted this method of line cleaning, and in order to protect the ball wrapped it in several layers of burlap. This was an improvement, but the method was still not satisfactory.

The Wayne Ball

We have in the past used many types of devices in an attempt to keep the lines clean, but without a great deal of success. Consequently, we were most pleased when a foresighted member of the sewer department, realizing the need for an efficient cleaning device, drew on his experience with beach balls and designed and built the Wayne ball.

This ball is constructed of a heavy, specially compounded, high-grade natural rubber, the thickness of the wall varying with the size. It is heavily reinforced at each end, with a lug molded thereon which is attached to a tagline. The periphery of the ball is molded with ribs running diagonally from end to end. The action of the rib is much like the action of a squeegee. As the ball travels, the ribs are forced along the top and sides of the pipe, thus cleaning all the slime from the sides.

The method of cleaning the lines with the Wayne Ball is very simple and can be done by a two-man crew. One man inserts the ball with the tagline attached into the line. The tagline is run through a pulley and brought to the surface. The line is then wrapped around a roller that controls the speed of the ball. The entry of the ball into

A workman holds the sewer cleaning ball with the rope attached.

After the ball has been placed in the sewer, its progress is controlled by the operator and this windlass.

Here is the ball, after travelling through the line, and a load of dirt that the ball helped to remove.

line causes a complete stoppage, and as a result the manhole is filled with water. When the head pressure of the water in the manhole is sufficiently high, the ball starts through the line. The greater the head, the greater the force and speed of the ball. The ball, being lighter than the water and filled with air, has a tendency to rise to the top of the pipe. This allows a jet of water to escape under the ball. This jet forced all the debris along before it and assures a clean line. In case of obstructions such as joint fins, bricks, and sticks, the force of the ball dislodges these with little effort. By taking up and releasing the tagline, an action results which is much like a plunger effect, and dislodges any stubborn obstacle.

Most of the routine trouble calls in the City of Long Beach are the result of roots in the lines. The Wayne Ball also does an efficient job in this respect because by exerting sufficient force it will cut the roots at their points of entry into the line.

In some instances where lines have deteriorated and collapsed, or have an obstruction completely blocking the line, the Wayne Ball cannot be forced through. In cases such as these, the ball may be inserted and will travel its course until progress is halted. It may then be withdrawn, and the length of the line measured. This gives the exact location where repairs must be made.

Cleaning the Pipe

The amount of pipe cleaned varies greatly with the conditions. Runs of 3,000 feet to 2 miles are the average 8-hour working-day's progress. In one case, in an industrial area of Los Angeles, the Wayne Ball was given one of its severest tests. An overall and rag-cleaning plant was discharging its wastes into an 8-inch gravity line. This line had been found to be plugged, and was virtually inoperative. The waste consisted of cleaning solvent, oil, and oily sludge, and a large quantity of lint and small bits of cloth. The combination of these materials caused a gelatinous mass to form and almost completely close the line, and all efforts to clean it had been unsuccessful. The badly fouled line was approximately 500 feet long. Progress was slow due to the amount of closure, and the shallowness of the line, but a Wayne Ball was finally introduced into the line. Cleaning operations occupied approximately 3 hours, and as the ball emerged in the downstream manhole, a slug of packed material composed of sludge, dirt and rags and estimated at from 30 to 50 feet long, preceded it.

Runs of 400 feet have produced 3 cubic yards of material in 32 minutes. Other runs of 3,000 feet and more have been made in a period of an hour, and still others of 5,000 feet have been accomplished in a working day.

The Wayne Ball by far has proved to be the most efficient method for sewer cleaning this city has found. Since the adoption of its use about three years ago, approximately 90% of all the lines in this city have been cleaned.

Proof that clean lines reduce sulphides is shown in the records kept by the city of Long Beach. These records show that the sulphides have been reduced from as much as 15 ppm to .5 ppm as a result of lines being cleaned with the Wayne Ball. Prior to the use of the Wayne Ball, many calls and complaints were received by the city. These ranged from complaints of sluggish flows and odors, to complete stoppage. Since its use, however, very few complaints of this nature are being registered.

Municipal Recreation Areas Compared

ONLY 13 of 68 cities from 10,000 to 600,000 population which replied to a recent questionnaire from the Chamber of Commerce of Long Beach, Calif., report that they have more than the National Recreation Association's standard of 10 acres of park and recreation areas per 1,000 population.

Here is how the cities measure up, according to the Long Beach Chamber's *1948 Parks and Recreation Survey*.

Median number of acres per 1,000 population devoted to park and recreation purposes is 5.5. Is your city below this level?

City	*Acres Per 1,000 Population*	City	*Acres Per 1,000 Population*	City	*Acres Per 1,000 Population*
Lynn	18.8	Reading	7.5	Charlotte	4.2
Spokane	17.0	Fort Wayne	7.0	Denver	4.1
Flint	16.0	Memphis	6.5	Indianapolis	4.0
Youngstown	15.2	Tampa	6.3	Norfolk	3.7
Austin	15.0	Schenectady	6.1	Portland	3.6
New Haven	13.8	South Bend	6.0	Evansville	3.4
Springfield	12.5	Rochester	5.9	Oakland	3.4
Toledo	12.4	Hartford	5.8	Berkeley	3.3
Lansing	12.2	Gary	5.7	Columbus	3.3
Tacoma	11.4	Seattle	5.7	El Paso	3.3
Little Rock	11.0	Louisville	5.6	Fort Worth	3.2
Minneapolis	10.7	Beaumont	5.4	Akron	3.0
Sacramento	10.6	Wichita	5.4	Phoenix	3.0
Omaha	9.4	Kansas City (Mo.)	5.1	New Bedford	2.8
Syracuse	9.4	San Antonio	5.1	Erie	2.5
Pasadena	9.2	Dayton	5.0	Mobile	2.2
Wilmington	9.1	Long Beach	5.0	Trenton	2.2
Cincinnati	8.9	Atlanta	4.6	Tulsa	2.1*
Oklahoma City	8.3	Kansas City (Kans.)	4.5	Houston	1.8
Grand Rapids	8.2	Richmond	4.5	Chattanooga	1.6
Dallas	8.1	Canton	4.4	Salt Lake City	1.4
Utica	8.1	New Orleans	4.4	Glendale	1.0
San Diego	8.0	Waterbury	4.3		

* Does not include 3,000-acre park outside city.

Federal Aid for Sewage Plants

LOANS to municipalities of $22,500,000 annually for five years for building sewage treatment plants and annual outright grants aggregating $1,000,000 a year each to states and local governments for planning and engineering costs are authorized in the anti-pollution bill (S418) signed by President Truman on June 30.

Under the new act, the loans (at 2% interest) will meet one-third of the construction cost, but not more than $250,000 per project. The grants will be limited to $20,000 each or one-third of the cost of the project, whichever is lower.

The American Municipal Association reports that the grant and loan program will be administered jointly by the Federal Works Agency (Bureau of Community Facilities) and the Federal Security Agency (Public Health Service) under policies laid down by a national commission on which both agencies will be represented. The funds, of course, will be channeled to localities through state agencies. FSA will handle grants to the states and select the projects. FWA will handle planning grants and construction loans to municipalities and to other local agencies.

The act also authorizes $800,000 a year for five years for building a research laboratory at Cincinnati, to study water-pollution problems.

Town Engineer a Sound Investment

Cumberland, the smallest community in Rhode Island to retain an engineer on a full-time basis, records the dividends

Left to right, Engineer Hayden, Town Council President John E. Gill, and Public Welfare Director Anthony J. Waskiel, inspect new equipment.

By **JOHN E. GILL**
President, Cumberland, R. I., Town Council

CUMBERLAND, with a population somewhat over 10,000, is the smallest town in the state of Rhode Island to employ a town engineer on a full-time basis.

We have found since hiring Town Engineer Edward J. Hayden about 16 months ago that his salary of $4,500 a year has been one of the soundest expenditures of taxpayers' money in the experience of the Town Council members. Savings in engineering fees alone have more than offset the expense of his salary.

However, even if we had no tangible and direct return to show for hiring of a town engineer, we would still consider his salary money well spent, for it puts at the administration's service an expert, responsible to the townspeople, intimately familiar with our particular problems.

In 1946 the Town Council asked the Town Meeting to authorize legislation creating the office of Town Engineer, and to make that official responsible for operation of the Highway Department and for advice and assistance in other appropriate fields. Legislation to this effect was passed a few months later by the General Assembly.

Mr. Hayden, who was appointed by the Town Council in November 1946, is a civil engineer who came to us from the U. S. Engineers Office after 10 years' experience in flood-control projects and fortifications.

For a number of years we had been contemplating construction of a modern Highway Department garage. We went ahead with the project soon after Mr. Hayden was hired. He took over the burden of preliminary planning and preparation of bid scheules. The project was started last spring, carried on under his supervision, and completed early in November. Costing $45,000, the garage construction alone without the 10% engineering fee saved the town the amount of the Engineer's entire year's salary.

Another saving of the same kind is in prospect, for later on during the current year a $60,000 Town Hall alteration and renovation project is planned.

The Highway Department, of course, has been the Town Engineer's principal concern, particularly during this past winter, when we had a record snowfall of nearly 7 feet.

At one session of the Town Council, three written commendations and one oral compliment were received concerning the prompt and thorough snow-removal operations which Mr. Hayden supervised. The huge task, which so pleased the public, of keeping passable approximately 100 miles of highway that includes long stretches in sparsely populated rural sections, and inclusive of state highways, was accomplished at a cost of $11 per mile. There were nine snow storms requiring snow removal.

Town Engineer Hayden tells me that a great help to his snow-removal accomplishment was the new equipment which the taxpayers in Town Meeting and the Town Council authorized him to acquire.

Finding that the department's principal equipment consisted of two dump trucks and a light bulldozer, the engineed drew up a list of new pieces that would be needed.

We now have the following pieces of equipment:

Caterpillar D-4 bulldozer
T-2 Caterpillar Traxcavator
312 Adams diesel grader
International KB-11 truck
Dodge 3-ton truck
Mack 4-ton truck
Dodge 4-ton truck
GMC 1½-ton truck
International tractor mule, or sidewalk plow
Buffalo Springfield roller
Schramm air compressor
P & H welder and snowplows for all trucks

The Dodge 3-ton, the Mack trucks, and the International tractor are the older pieces. Approximately $35,000 spent on the new equipment came out of our public-works reserve fund.

Our Board of Water Commissioners is another agency that has found Engineer Hayden useful. They recently received a report from an engineering firm, retained prior to Mr. Hayden's appointment, on a survey of the capac-

ity of the reservoir from which part of the town is supplied. They can turn to him for interpretation of this report and for advice on the rate and direction of expansion of the system.

The current school-needs survey is the second matter in which school authorities have been served by the new official. Earlier, he surveyed available school athletic field sites and submitted estimates as to their suitability.

The police, too, have called upon him. No-parking regulations have been based on a survey he made.

Mr. Hayden has taken over maintenance of the Public Welfare Department ambulance and the police car. He has assigned this work to the mechanic on duty at the highway garage.

The Board of Tax Assessors has received numerous copies of plats from the engineer and called on him for help in keeping the record of ownership changes up to date.

Appointment of this official has paid off for the Town of Cumberland by supplying the Town Council and other boards with a single and readily available source of technical experience, in coordination of public works direction, through auxiliary services of his office, and in public satisfaction. The step was a new departure among the small towns of this state. I cannot predict whether others may follow our lead, but if other towns are having the problems which led us to employ a full-time engineer, they may find our experience a worth-while example.

The Highway Department is one of the main responsibilities of Cumberland's engineer. This $45,000 garage was built, and much of the apparatus lined up in front of it was acquired, during a period of slightly over a year he has been on the job.

More Universities Contribute Towards Municipal Costs

A TREND towards more adequate contributions to municipal governments by tax-exempt universities and land-grant colleges is disclosed in a survey completed last month by the International City Managers Association. The survey covered 24 such institutions and revealed a variety of ways in which some of them contribute directly or indirectly to support of municipal services:

1. *Utility payments.* Thirteen universities in the group pay the city the same utility-rate charges as other consumers. Among these institutions are those located in Austin, Texas; Boulder and Golden, Colo.; Bozeman, Mont.; and Seattle. Ten cities out of the 24 also collect sewer-service charges from their state universities.

2. *Annual lump-sum payments.* Eight universities in the group contribute annual lump sums to the municipality for special or general service. For example, the University of Michigan at Ann Arbor has agreed to pay one-seventh of the city police department payroll each year. The 1948 payment is $24,879. Rutgers, Iowa State, the University of California, and others make similar payments.

3. *Single lump-sum payments.* The City of Ames and Iowa State College have agreed to share expense of a new sewage-treatment plant and sewer system for the community. The university will pay about 30% of the $700,000 costs. The University of Illinois has contributed to costs of new municipal sewers. The University of Iowa helped pay for Iowa City's sewage-disposal plant.

4. *Joint fire services.* Ann Arbor has been given full use of fire-fighting equipment purchased by the University of Michigan. The University of Illinois maintains its own fire department and has a mutual-aid agreement with the Champaign and Urbana fire departments. The University of Alabama constructed a new fire station which is used also by the City of Tuscaloosa.

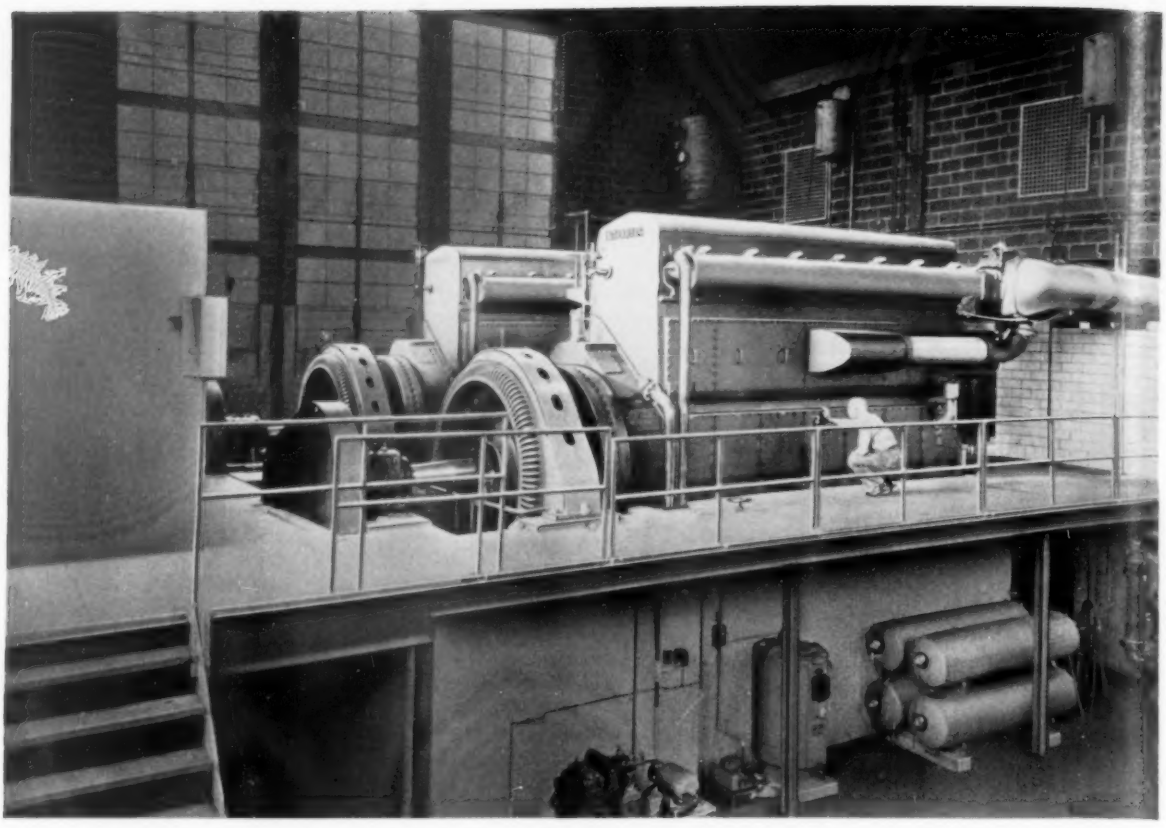
Redevelopment Proposed For Large St. Louis Slum Area

A BROAD-SCALE attack on slum and blighted areas in St. Louis, involving the clearance of a 54-block area and estimated bond issues of $16,000,000, was approved on June 11 by the Board of Directors of the St. Louis Chamber of Commerce. The plan has also been approved by the Executive Committee of the General Council on Civic Needs, representing about 160 civic organizations. Voters will be called upon to approve the bond issues in the November election.

The project will be fully co-ordinated with the Memorial Plaza and Civic Center, and will also be situated near both. One of the main stated purposes of the plan is to clear the land for use by private enterprise for the building of multiple dwellings, hotel and office accommodations. As proposed by the Anti-Slum Commission, the plan also involves the creation of several parks, a super-highway and underground parking. Recognition is given to the fact that the area to be razed has 2,479 dwelling units, and that many persons will be displaced. The assessed value of all property in the area involved is about $10,220,000.

The Anti-Slum Commission report declares:

"The City, under its right of eminent domain, can condemn this property at a fair and reasonable price, but not necessarily at its assessed value. It will doubtless be the intent of the city to dispose of portions of the cleared site to private enterprise on a use-value basis. We propose that the city proceed with the project, and be the first to take advantage of any government aid if it should be forthcoming. We further propose that if outside assistance is not provided that the city proceed on its own."



The two new 1,000-kw diesel engine generators that now supply Bluffton's electric power needs.

Bluffton's Diesel Power

Diesel engine-generators take over when "Old Man River" fails

OLD MAN RIVER may keep rolling when you sing about him, but when you try using him for electric power, he just doesn't seem to be able to come through consistently in the pinches. At least that is what the town of Bluffton, Ind., decided after trying to rely on the Wabash River to help supply its quota of kilowatt hours.

Actually hydroelectric power was out of the question for Blufftonites, but they had been able to use the river handily as a source of cooling water for its steam-generating plant. But as the community's need for more power grew and the flow from the Wabash became more and more temperamental, Superintendent Ben Freeland realized that important decisions had to be made.

During the war years he and the Bluffton City Council made a study of alternate sources of power. Their study indicated that for Bluffton, diesel would serve most economically. "Old Man River" produced two compelling reasons for this selection. The first was that during summer months the quantity of water is low, and the cost of impounding enough to carry through this period was beyond the economic resources of the city. The second was that the temperature of the water during the summer months was too high to do a good cooling job.

After further appraising these studies, Bluffton awarded a contract for a new power plant. The main generating units included two Nordberg four-cycle supercharged diesels totaling 2,000-kw capacity. They are housed in an entirely new brick building that has within it such up-to-date equipment as a traveling overhead crane, a Westinghouse metal-clad switchgear, a Marley Company induced-draft cooling tower, a compact and effective intake-and-exhaust system, and two 20,000-gallon Graver underground fuel-storage tanks. The two Nordberg diesels furnish power to a pair of Electric Machinery Company generators. The engine-generator sets now occupy half the building, leaving the remaining space available for storage and future expansion.

Bluffton's power plant furnishes power not only to its 6,000 people in their homes, but also to a farm-tool manufacturer, an auto-equipment manufacturer, a large new streamlined foundry, a piano factory, a pretzel factory, and several small factories and some 300 rural customers.

The city fathers working enthusiastically to carry through the program include Mayor John H. Ward; City Attorney John N. Edris; Councilmen Earl Fryback, who also serves as a member of the Board of Public Works and Safety; Don Reed, John Risc, Victor Grosjean, and Silas Neff. Edith M. Arnold is City Clerk-Treasurer.

A National Program for Municipal Governments

By CARL H. CHATTERS*
Executive Director
American Municipal Association

A NATIONAL program for municipal government will include the most important problems which the cities in all states have in common. Only by this device can municipal government in America be raised to the really important place it deserves both in fact and in public estimation. For the sake of convenience the needs which cities have in common will be tied together and called "a national municipal policy." Time will not permit the listing and description of all these, but several will be set forth briefly. This will illustrate the possibilities and the value of a national program for municipal governments in which the municipalities of all states can cooperate.

1. *Greater rights of home rule should be extended to all American cities.* Within the framework of broad *constitutional* grants and broad *statutory* grants and limitations, the municipalities of this country should have the right to adopt and amend their own charters and to pass all other laws consistent with their powers and not inconsistent with the state constitution and state statutes. In a democratic society individuals and cities should have the right to govern their own conduct as long as they can do so without infringing on the rights of others. You have a great degree of home rule in New York State already. Now you ought to help other states to obtain it.

2. *Municipal government and municipal officials must command and receive public respect and public recognition.* Too many competent elected officials fail to run for re-election because the public does not appreciate the sacrifice they make in order to hold public office. Appointive employees frequently leave municipal government because their salaries are low and because private employment seems to lend greater prestige. Both elected and appointive officials must deserve this respect and good will. But if the public wants good public servants it must remember that public respect for government and for public employees will induce the best qualified people to enter government service and remain in it.

3. *Municipal government must be conducted at the lowest possible cost consistent with the number of activities and the standards of service which the citizens require.* Many elements, including inflation, affect the cost of municipal government. These must be understood both by the public and the officials who represent it.

4. *Every person should have a decent home.* Most of these homes are in cities and most of the people live in cities. Good homes are the best basis for an economically sound and socially desirable city. Municipal governments, in cooperation with other governments, control many of the conditions under which homes are constructed. Home building can be encouraged or discouraged by municipal government action. Municipal governments throughout the United States should not only support but also initiate efforts to improve the housing of urban dwellers.

5. *Municipal life is satisfactory only when good transportation exists.* For most cities today this is the Number One or Number Two problem. In the modern city people must be able to move about within the city, and from the city to outside areas, with speed and safety. Urban transportation is a public problem to be solved under public leadership whether the methods of transportation be publicly or privately owned.

6. *Municipal governments are entitled to sufficient revenue to finance the activities required of them by custom or law.* The amount of revenue they need will be determined by the extent of their responsibilities. New revenue measures are being tried by many cities. Some of these are productive and respond properly to the general need for a broader municipal-revenue base. Your own State of New York has taken the lead in stabilizing municipal revenues, in revising its program of grants-in-aid, and in extending new taxing powers to local governments. This revenue problem surely is of national concern and should be part of any national program for municipal government.

7. *Municipal officials and employees should receive adequate compensation.* Municipal employment should offer the same opportunity for pay and promotion as private employment. This principle should apply to administrative, professional, and technical employees as well as those in the lower salary levels.

8. *Municipalities should have the legal and statutory right to cooperate with each other by contract.* Thus, they can do locally many desirable things that would otherwise be transferred to state or federal agencies or to special authorities. Voluntary cooperation between municipalities will eliminate the necessity for many new local governments and will provide centralization of services without changing the structure of local government or centralizing authority in a higher level.

9. *There must be a sympathetic and intelligent understanding between the municipal governments and the state governments.* Their authority and their revenues spring from a common source, the people. They work toward a common end, the well-being of these people. Properly there is no difference between the interests of the municipalities and the interests of the state, since they have as their common denominator the same people whom both must serve.

Municipalities Provide Environment for Business to Operate

The Federal Reserve Bank of Philadelphia, in its *Business Review* of November 1947, said, ". . . in concentrating on the techniques of industry and trade we have given little attention to the general physical environment in which business operates. In an industrialized economy, such as our own, the largest part of that environment is the city. . . . Large-scale manufacture required great concentrations of population from which to draw a labor force. The various types of industries tended to congregate because they needed each other's products and services. And only in the city organization could they obtain those facilities—transportation and other public utilities—which they required for modern, low-cost operation. . . . In a broader sense, it is also true that the cities are the environment for our entire economy." What a tribute to municipal life! What a challenge to municipal governments to meet their responsibilities to our national economic system!

* The author is perhaps best known in municipal circles for his long service as executive director of the Municipal Finance Officers Association. He has also recently served as Comptroller, the Port of New York Authority, and as Professor of Municipal Administration and Finance, Northwestern University. This article is condensed from his talk at the 39th Annual Meeting of the New York State Conference of Mayors and Other Municipal Officials on June 16th.

Two Rails at a Time . . . . . .

Dual hydraulic puller developed at Reading, Pa., pulls both rails from abandoned tracks in same operation

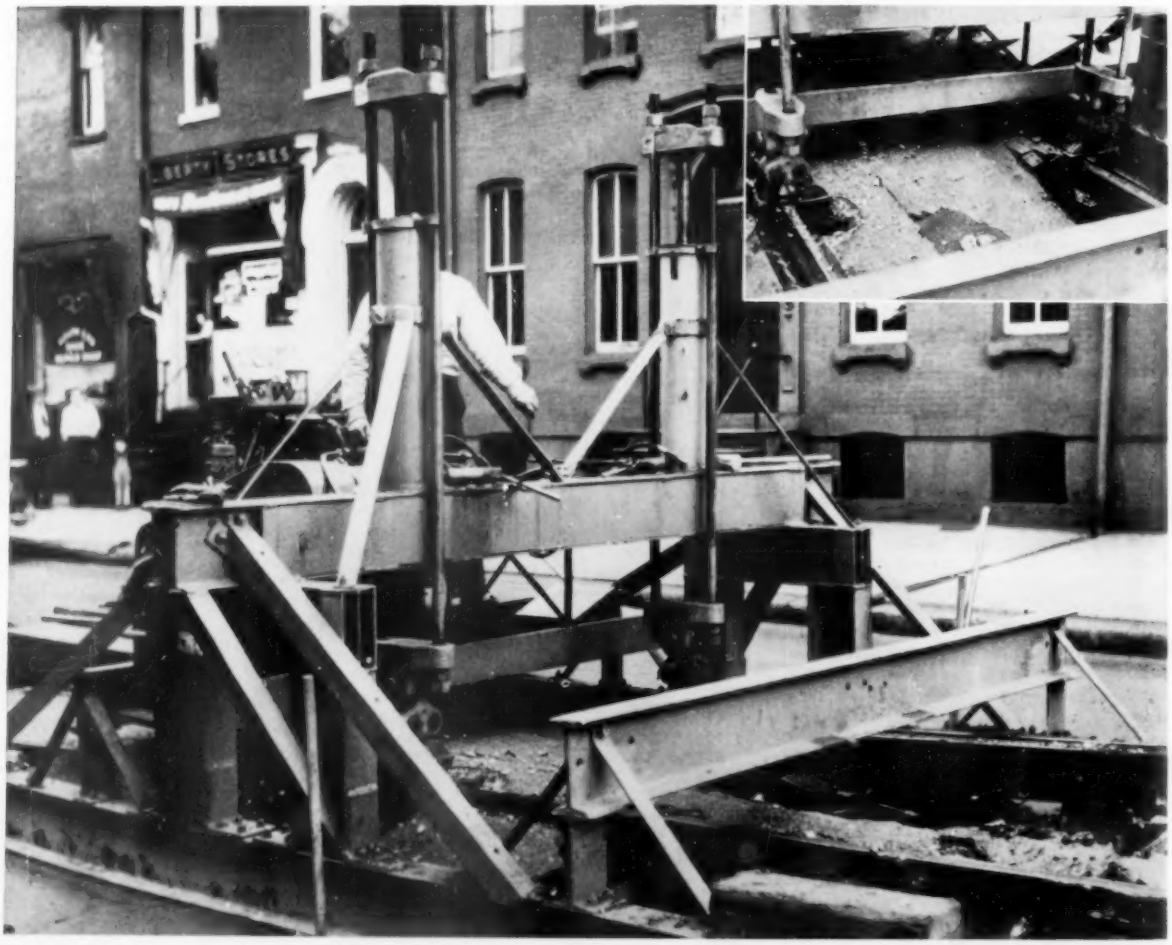
A DUAL rail puller developed by C. E. Keefer, equipment superintendent of the Reading Street Railway Co., Reading, Pa., slips both rails out of abandoned streetcar tracks in the same operation. The puller consists of two 150-ton hydraulic jacks located directly over the rails on the cross-member of a steel frame. These jacks are operated by a gas-engine-driven hydraulic pump, mounted on the machine about 24 inches above the street level. A high-pressure-feed hose runs to each jack through a control valve, which acts as an equalizer to stop off one jack that may travel faster than the other. There is also a low-pressure hose that acts as a return line to lower the jacks. This valve is controlled by a high-pressure quick-release valve, located on the base of the jack.

Operating Speed

The lift of the jacks is 18 inches. They will lift at the rate of 14 inches per minute. Three minutes are required for moving the machine from one position to the next lift, 10-14 feet, applying the hooks to the rail, lifting this section, lowering the jacks, and unloading from raised portions of track ready for the next position. Conditions vary, depending on the type of track construction, but the average is about 1,400 feet per 8-hour day. In solid concrete, the speed of removal will be slowed somewhat.

Four men are required to operate the puller: a driver whose truck moves the machine, a machine operator who controls the gas engine that powers the jacks, and two men who are assigned to the hooks that are connected to the rails. In addition, there is an advance crew that cuts notches out of the paving to get the hooks under the rail. Following the machine is another crew that cuts and removes the rails.

The machine was originally designed to pull a single rail at one time. This worked so satisfactorily that the dual puller was designed and built. The hydraulic jacks and pumping unit were built by the Rodgers Hydraulic Corp., St. Louis Park, Minneapolis, Minn.



Dual rail puller at work. Inset: Close-up of the pullers in the process of easing the rails out of concrete.

Across this marshy area the sewer was laid close to the surface, with cement-mortar "diaper" joints.

Savannah's Century-Old Sewers

Rehabilitation of old sewers and construction of new ones means a far-reaching sewerage program for this city

WHEN a city's brick-arch sewers have served for a hundred years, the people in that city should be ready to replace them with the realization that the old sewers had been a fine investment. And when a historic city like Savannah continues to flex its industrial muscles by building new plants, the people should be ready to supply the sewerage facilities needed for the workmen that make these big plants live. And so a few months back, city officials borrowed $2,500,000 in revenue certificates to finance important municipal improvements; $800,000 of this was earmarked for sewer improvements.

The sewer improvement program was designed under the direction of Wiedeman and Singleton, Atlanta, Ga., consulting engineers. Construction is under the direction of City Engineer D. D. Hankins. It covers the construction of both storm and sanitary facilities and includes the construction of three pumping stations that will use $142,000 of the amount provided.

Sewer Pipe Made Locally

All the sewer construction calls for the use of concrete pipe made locally. That used for sanitary sewers varies in size from 8 to 12 inches, and that used in storm sewers goes as high as 60 inches. In the storm sewers the pipe is jointed by what is known locally as the "diaper" joint. This consists of a cloth wired in place around the joint and a wet cement mortar poured into the annular space. The mortar is poured into one side until it rises on the other and prevents the trapping of an air space in the bottom. The sanitary sewers use an asphalt-caulked joint.

In much of the sanitary sewer construction, the city is faced with the need for building the lines through areas with a high water table. In these cases a Moretrench wellpoint system has

Workmen jet into place the wellpoints used to dewater this line. Note the pairs of concrete pipe ready to be installed, with one joint already made.

been used to drop the water table from 14 to 15 feet. On a typical installation two 8-inch pumps have been required to do the work. The wellpoints have been placed at 10-foot intervals. When dewatered, the sandy soil stands at a slope of ½:1. It takes on an average of 24 to 36 hours to dewater an area so that it is ready for construction.

The $800,000 improvement program includes more than construction alone. It also has funds set aside to acquire new equipment. In this new equipment category are the following pieces that have been purchased and delivered:

One "Quick-Way" shovel
One Galion motor grader
Four dump trucks and one pick-up truck
"Flexible" Power Drive sewer-cleaning equipment

These two portable pumps are used in the dewatering work that is necessary in some areas. The one to the right is supplying water for the jetting operation.

Three portable pumps; two are mounted on trailers.

With this new construction and equipment, the historic city of Savannah expects to bring up to date a sewerage system that already has been functioning for more than a hundred years, and that incorporates those ele-

Modern Water Rates and Service Charges—III

Why Use Meters?

Can a water service afford the luxury of a flat rate?

INASMUCH as more than 85% of all water distributed today is on a metered basis, one might consider that the public knows the answer. Nevertheless, it is only right that we look at this fundamental question: Why should a water utility go to the expense of metering?

The late Allen Hazen summarized the answer in the first paragraph of his classic text, *Meter Rates for Water Works*, as follows:

"There are two reasons for the use of water meters. The first is that selling water by measurement is the only logical and fair way of conducting the business. It is the only way that does not result in gross inequalities and discriminations against some of the takers and in favor of others. The second reason is that metering water is the only practical method yet found for restricting excessive waste."

Water Supply a Business

From an administrative standpoint, the first is the more compelling. It recognizes that water supply is a business, and as such it is obligated to make an equitable charge for the amount of water purchased and no more. Flat rates are bound to produce inequalities. They generally are based on the number of plumbing fixtures and accordingly tend to discourage complete household plumbing.

In some areas outside the United States we understand that water service is charged on an "ability-to-pay" basis, somewhat as taxes are assessed. This, of course, takes the service out of the classification of a business, and makes it one of the police powers of the community. Theoretically, it may have some merit. But from a practical standpoint, it is hard to visualize any family in this country as being forced into economic ruin because of the financial load of its water bill. And a great deal can be said in favor of the democratic principle that everyone, regardless of station in life, obtains no special treatment or privileges. Payment on the basis of a well-planned meter rate insures that this will be the case.

From an operational standpoint, the second reason is of equal and often greater importance. What happens when meters are installed is frequently dramatic. Here are a few examples of such cases.

In 1936, Louisville, Ky., used 48.6 mgd of water, distributing it on a flat-rate basis. When meters were installed the quantity dropped and has never risen to this figure again.

In 1940, Wahpeton, N. Dak., distributed 700,000 gallons per day to its people on a flat-rate basis. When meters were installed, this use dropped to 250,000 gallons per day, and the bill for the average water user was less than it was under the flat-rate system.

Prior to 1931, Elizabeth City, N. C., distributed water on a flat rate, averaging 1.8 mgd. With a 2-mgd top capacity in the plant, this gave the operators many uneasy moments. When meters were installed, this water use dropped to 0.3 mgd. Here again the demand has never again reached the 1931 figure.

A few years ago, Prof. Thurlow C. Nelson, Chairman of the Water Policy and Supply Council in the New Jersey State Department of Conservation, delivered a paper before the New Jersey Section of the AWWA. In it he recited these figures covering specific New Jersey cities:

City		*Per Cent Metered*		*Daily Per Capita Use*
Moorestown	When	9%	metered	90 gals.
	"	100%	"	59 "
Ridgewood	"	2%	"	72 "
	"	100%	"	62 "
Swedesboro	"	10%	"	100 "
	"	96%	"	55 "
Woodbury	"	2%	"	150 "
	"	99%	"	63 "
Jersey City	"	24%	"	159 "
	"	100%	"	123 "

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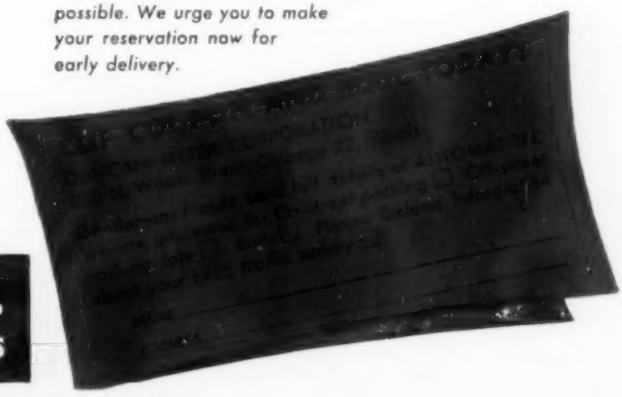

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835 N. WOOD STREET, CHICAGO 22, ILLINOIS

the water needs no pumping, or no treatment, then and only then can the utility afford the wasteful luxury of a flat rate.

Mt. Pleasant, Mich.

Rates (on quarterly basis)

First 500 cu. ft.	40c per 100
Next 6,000 cu. ft.	16c " "
Next 10,000 cu. ft.	14c " "
All over	10c " "

The department receives a hydrant rental from the city of $15 per hydrant per year. Private hydrants are billed at $25 each year. There is no private sprinkler charge. The water department makes no contribution to the city's general fund.

Minimum charges

1½" meter and smaller	$1.50
2" meter	5.00
3" meter	7.50
4" meter or larger	10.00

A discount of 10% is allowed for prompt payment. A penalty of $1.00 is made for payment after 30 days.

General Data

Population served	12,000
Services (100% metered)	2,200
Hydrants	154
Miles of mains	25
Supply—wells	
Storage, overhead	1½ mg
Treatment—none	
Average demand	1 mgd
Plant capacity	3 mgd

Water Characteristics

$CaCO_3$	290 ppm
Fe	1.1
pH	7.0
Temperature	48° F.

Customer Costs (per month including discount)

3,000 gals. (400 cu. ft.)	$ .94
5,000 " (667 cu. ft.)	1.32
10,000 " (1333 cu. ft.)	2.28

This represents about a 15% rise in ratio to most users.

R. T. Paullin, *Water Commissioner*

Austin, Texas

Rates Per Month

First 1,500 gals.	50c minimum
Next 2,000 "	30c per 100 cu. ft.
Next 12,500 "	25c " " " "
Next 34,000 "	20c " " " "
Next 200,000 "	15c " " " "
Next 300,000 "	12c " " " "
Over 550,000 "	11c " " " "

General Data

Population served (est.)	140,000
Services (100% metered)	28,422
Hydrants	2,211
Miles of mains	312
Service levels	3
Supply—Colorado River	
Treatment—lime softening, iron sulphate coagulation	
Average demand	16.5 mgd
Plant capacity	33 mgd

Water Characteristics

	Raw	Tap
$CaCO_3$	179	79
Fe, Mn	...	...
pH	8	10
Temperature	68	68

Customer Costs

3,000 gals. (400 cu. ft.)	$ .95
5,000 " (667 cu. ft.)	1.48
10,000 " (1333 cu. ft.)	2.73

These rates are now in effect as of June 1, 1948. There is no charge to the general fund for fire hydrants. A current raise in taxes is presumed to reduce the amount of aid rendered to the general fund by the Water Department. This will delay an added water-rate increase.

Albert R. Davis, *Water Superintendent*

Boonville, Mo.

Rates Per Month

First 10,000 gals.	50c per 1,000 gals.
Next 30,000 "	38c " " "
Next 35,000 "	31c " " "
Next 50,000 "	25c " " "
Next 75,000 "	23c " " "
Next 200,000 "	20c " " "
Over 400,000 "	15c " " "

Minimum charge, $1.13 per month, allows use of 2,250 gals. A 10% penalty is adden when payments are delinquent.

General Data

Population served	7,000
Services (100% metered)	1,850
Hydrants	160
Miles of mains	20
Storage, raw	3½ mg
Storage, ground	1 mg
Storage, overhead	gals. 130,000
Supply—Missouri River	
Treatment—lime softening	
Average demand	0.8 mgd
Plant capacity	1.5 mgd

Water Characteristics

$CaCO_3$	125 ppm
Fe	0.1 ppm
Mn	...
pH	9.3

Customer Costs Per Month

3,000 gals. (400 cu. ft.)	$1.50
5,000 " (667 cu. ft.)	2.50
10,000 " (1333 cu. ft.)	5.00

These rates were placed in effect in May 1947. The department makes no charge against the city for fire hydrants. No money from the operating fund goes to the city.

John F. Sanders, *Superintendent*

Augusta, Ga.

Rates Per Month

First 30,000 gals.	30c per 100 gals
Next 570,000 "	24c " " "
Next 300,000 "	18c " " "
Next 4,000,000 "	15c " " "
All in excess	12c " " "

Minimum Monthly Bill

⅝" meter	$ .90
¾" "	.90
1" "	2 10
1¼" "	2.40
1½" "	2.60
2" "	3.60
3" "	4.80
4" "	9.60
6" "	14.40
12" "	25.00

Where water is supplied outside the city limits, the charge is doubled.

General Data

Population served	110,000
Services (100% metered)	15,247
Hydrants	1,250
Valves	900
Miles of mains	170
Storage, ground	60 mg
Storage, overhead	2 mg
Supply—river	
Treatment—rapid sand filter	
Average demand	12 mgd
Plant capacity	15 mgd

Water Characteristics

$CaCO_3$	4.5 ppm
Fe	0.03
Mn	1.7
pH	7.3
Temperature	50° F.

Customer Costs

3,000 gals. (400 cu. ft.)	$ .90
5,000 " (667 cu. ft.)	1.50
10,000 " (1333 cu. ft.)	3.00

The system is municipal and there is no book credit for fire service rendered. The department operates on an annual budget and all revenue is turned into general treasury every day. Unusual expenditures are authorized by special appropriations as they arise.

M. B. Cooper, *Superintendent*

Monrovia, Calif.

Rates Per Month

First 800 cu. ft.	$1.50
Next 2,000 cu. ft.	.07 per 100 cu. ft.
Over 2,800 cu. ft.	.06 per 100 cu. ft.

The department also furnishes irrigation water to about 90 customers at 3c per miner's inch-hour over the weirs. (Miner's inch = 1 cu. ft. per sec.) The department receives the sum of $2,100 from various municipal departments for the use of water as follows:

Fire	$ 100.50
Sewer	400.00
Street	200.00
Parks	1,200.00
Plunge	200.00

The water department contributes $30,000 to the city's general fund to reimburse the payment of bond and interest on water bonds.

General Data

Poulation served	18,000
Services (100% metered)	5,700
Hydrants	460
Valves	1,200
Supply—streams	
Average demand	4 mgd
Treatment—none	

Customer Costs Per Month

3,000 gals. (400 cu. ft.)	$3.00
5,000 " (667 cu. ft.)	4.20
10,000 " (1333 cu. ft.)	7.20

A. A. Blakesley, *City Engineer*

Appleton, Wis.

Rates

Minimum Charges (per quarter)

⅝" meter	$ 2.50
¾" "	3.00
1" "	4.50
1½" "	8.00
2" "	13.00
3" "	33.00
4" "	56.00
6" "	115.00
8" "	164.00

Output Charges Per Quarter

First 1,000 cu. ft.	min. bill each size meter
Next 3,000 cu. ft.	11c per 100 cu. ft.
Next 6,000 cu. ft.	10c " " " "
Next 40,000 cu. ft.	8c " " " "
Next 100,000 cu. ft.	7c " " " "
Next 350,000 cu. ft.	6c " " " "
Next 500,000 cu. ft.	5½c " " " "
Over 1,000,000 cu. ft.	5c " " " "

Appleton pays to the Water Department from the general fund fire-protection charges which in 1947 amounted to $52,438.01 and paid for all water used for municipal purposes a sum of $8,472.69. The Water Department pays city and school taxes on property into the general fund amounting in 1947 to $25,617.47, and pays interest on money invested by the city in the water works which amounted in 1947 to $63,264.48 (which is interest paid annually).

General Data

Population served	29,000
Services (100% metered)	8,723
Hydrants	769
Valves	1,366
Miles of mains	99.56
Storage, ground	3.0 mg
Storage, overhead	0.5 mg
Supply—river	
Treatment—lime softening	
Average demand	3.55 mgd
Plant capacity	6.0 mgd

Water Characteristics

	Raw	Treated
$CaCO_3$	154 ppm	75 ppm
Fe and Mn	...	...
pH	8.0	9.2
Temperature	33°-80° F.	

Customer Costs

3,000 gals. (400 cu. ft.)	$ .83
5,000 " (667 cu. ft.)	1.20
10,000 " (1333 cu. ft.)	1.93

These rates went into effect July 1, 1947.

William Gallaher, *Superintendent of Water*

Augusta's Community Improvement Conference

City officials and the public get together in a two-day meeting to discuss what the public wants and how the city can meet these needs

PROGRESS is reported by the Department of Public Works of Augusta, Ga., in the program of refuse refuse collection, street paving, and other projects discussed at the Community Improvement Conference recently held in that city. At this unique meeting, citizens and public officials participated in a series of "workshops" on Physical Facilities, Welfare Services, Health Service, Economic Development, and Mental, Emotional, Spiritual Education.

In addition the conference covered youth needs and devoted time to municipal planning under the guidance of Hugh R. Pomeroy, Planning Director of Westchester County, N. Y.

One of the most active of the workshops was the one devoted to physical facilities. Led by Mr. Pomeroy, it covered problems immediately facing the city and outlined methods of meeting them.

Refuse Collection

One of the first subjects was refuse collection. The people present spoke strongly and almost unanimously in favor of collection from the back yards instead of from the curb. They recognized the fact that such a service would cost more, but were ready to pay the difference in order to avoid the periodic nuisance of garbage cans sitting in the front yard.

The people expressed gratification when City Manager George J. Roark announced that such collection would begin promptly. He also stated that the sanitary fill type of disposal would be adopted for refuse disposal in place of the open dump. The city is acquiring a ⅝-yard dragline for the work and will also assign its Allis-Chalmers tractor-bulldozer to the work.

Street Paving

The people present next brought forth one of the questions that most frequently arises: why do streets have to be cut up so soon after paving? City Engineer John Twiggs answered by saying that the public utility companies do not always cooperate properly, with the result that the paving has to be opened for various services. City Manager Roark reported that regulations were being formulated that would bring about better coordination between the installation of street improvements and underground utilities.

Manager Roark stated that the city expects to spend about $25,000 from current funds for immediate street surfacing as soon as weather conditions permit. This, together with the share of street-improvement costs provided by property owners, would take care of about 10 miles of streets. City Engineer Twiggs outlined immediate and long-range street improvement needs. Of a present total of 161 miles of streets, about one-third are now paved.

Additional Revenue for Street Improvements

One participant suggested that instead of paying for street improvements out of current funds, there should be a complete improvement program with the city's share provided by a bond issue, and with the property owners given the option of paying their share over a period of years. He also suggested that additional revenues should be sought for street improvements by imposing some sort of vehicle tax, especially on trucks.

All agreed strongly with the proposal that truck routes should be designated, with residential neighborhood streets closed to all trucks not directly serving the neighborhood.

Finances

Here the discussion brought out the fact that the city had to work on a long-term financial plan. The present bond limit is about $3,788,000. With outstanding bonds, the present remaining bonding capacity of the city is about $1,398,000. Against this, a complete street-improvement program would cost $7,500,000. The City Manager reported that all the improvements that had been suggested would cost about $25,000,000.

Those present generally agreed that there should be a revaluation and equalization of property assessments. They supported the suggestion of the City Manager that a special board of citizens be called on to assist, particularly in the work of equalization, pending on the development of some means for a comprehensive reassessment.

Zoning

The discussion directed attention to the 1937 plan for a four-mile "tourist drive" consisting of beautified streets. Since the plan had not gone forward to completion, the group suggested that it be reexamined in the light of present conditions.

The discussion leader suggested that the entire zoning plan of the city, prepared in 1930, should be completely reexamined and overhauled in place of patching with spot zoning. He also pointed out that zoning could adequately control billboard nuisances.

Auto Parking and Transportation

The conference suggested that present and future traffic requirements include provision for off-street parking areas and named zones that appeared suitable. The discussion leader recommended that the zoning ordinance should require the provision of off-street parking facilities by all new uses involving concentration of automobiles, such as theaters, hotels, public halls, hospitals and churches, and that all new multiple residential developments should be required to provide off-street parking for the automobiles of the occupants.

The conference suggested further that adequate bus transportation be obtained for areas not now served.

The conference agreed that additional sewers are necessary. City Engineer Twiggs reported that certain areas require extensive replacement of worn-out sewers, and the city is considering means of developing for areas such as these in plans now being prepared.

Smoke Abatement

The conference gave enthusiastic endorsement of the suggestion that the city should impose effective control of the smoke nuisance, and expressed general willingness to support the city in measures to this end.

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Indianapolis Fire and Police Departments

Launch Two-Way Radio Systems

From a police emergency car, Corporal Lotz calls Police Headquarters over the two-way radiotelephone. In an emergency, a message can be relayed automatically from headquarters to all police cars by releasing a toggle switch.

LAST YEAR, the Indianapolis Police Department modernized its communications system by installing in 88 vehicles the latest two-way radiotelephone. Fire Chief Harry Fulmer, who retired last January, and Captain Robert L. Batts, head of the Police Department Radio Division, together designed a fire-department communications system calculated to save the city of Indianapolis approximately $100,000 during the first year of operation and approximately $40,000 a year thereafter. Their formula was to provide each department with its own radio equipment but to have all equipment housed in one building, with the exception of dispatching offices' equipment. The equipment would be operated by the newly organized Police and Fire Radio Division, made up almost entirely of the personnel from the former Police Radio Division. The plan was approved by the city, and the contract awarded to Motorola. The central station was inaugurated by Chief Fulmer last December 30, the day before he retired from 47 years of fire fighting.

Fire Chief Harry Fulmer (retired) dispatches the first fire-fighting equipment over Indianapolis' new two-way radio system. Looking on, from left to right, are Lieutenant Springer and Captain Batts of the newly formed Police and Fire Radio Division, and Indianapolis' new Fire Chief, Roscoe McKinney.

It was Chief Fulmer's dream since the earliest days of municipal radio communications to incorporate two-way radio into Indianapolis' fire-fighting operation, and to him goes the final credit for obtaining it. Among the advantages pointed out by Chief Fulmer are the invaluable time saved in dispatching runs, the prevention of false runs, the rerouting of equipment to live fires, and eliminating tracing hundreds of feet of hose back to the pumper to give orders.

Lieutenant Lich is talking to Fire Department headquarters.

Locale and Route of System

The radio dispatching of fire and police vehicles takes place from the separate downtown offices of fire and police departments. Talk-out is carried by telephone lines to central station transmitters housed in the main radio station building in Willard Park. Police and fire calls are transmitted from a single antenna on top of a 224-foot tower outside the building.

Police station WMDZ talks out on

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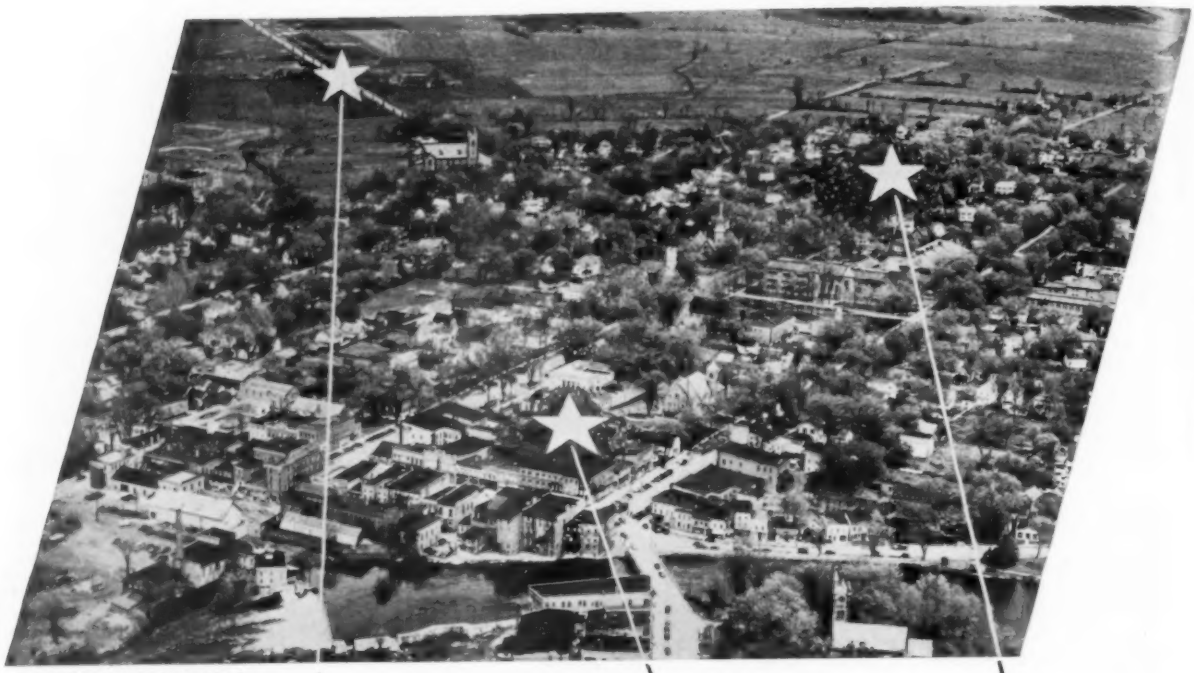

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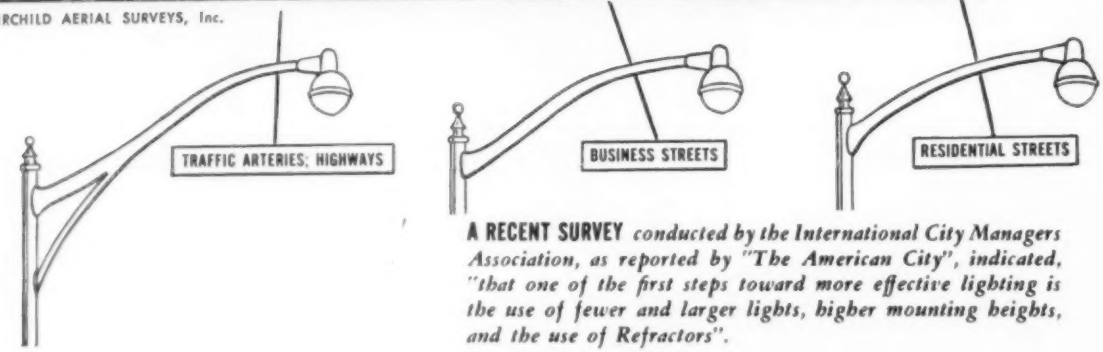
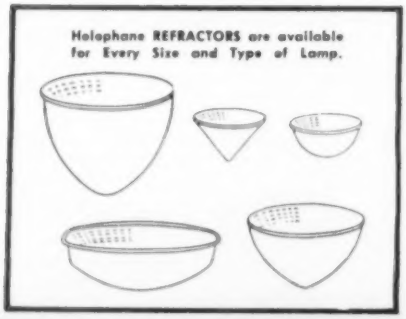


A RECENT SURVEY *conducted by the International City Managers Association, as reported by "The American City", indicated, "that one of the first steps toward more effective lighting is the use of fewer and larger lights, higher mounting heights, and the use of Refractors".*



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156.71 mcs; the fire station WHRU on 153.77 mcs. Police car talk-back is on 154.71 mcs; fire cars on 154.07 mcs. Talk-back receivers and antennas are on top of a 408-foot gas holder four miles northwest of the Willard Park station. Telephone lines carry the talk-back to fire and police dispatchers.

One of the most desirable features of the system is that it is virtually impossible to put off the air. Equipment throughout is in duplicate. There are duplicate transmitters at radio headquarters in Willard Park and duplicate receivers on the tank. A flip of the central switches activates any desired piece of equipment from the Willard Park radio station. Emergency receivers are maintained at Willard Park. In the event that a broken phone line or any other emergency inactivates the dispatcher's remote controls, emergency controls incorporated at the Willard Park transmitter may be used. As long as everything goes well, the duplicate equipment remains on auxiliary standby. Radio repairmen are available 24 hours a day, and an emergency generator stands ready in case of power failures.

Willard Park headquarters have two separate control desks: one for the police equipment with auxiliary controls, and the other for emergency control of fire equipment. At present, the police system consists of 71 two-way-radio police cars, five motorcycles and nine three-wheeled cycles equipped for radio reception only, and four two-way-radio city ambulances. In addition to their own city policing problems, Indianapolis offers radio service to nine two-way-radio-equipped Marion County sheriff's cars and to two-way-radio police cars in two neighboring towns. This system handled 90,648 separate complaint runs in 1947, covering a total of 392,209 messages.

The Fire Department radio system consists of 32 two-way-radio-equipped vehicles and 27 FM receivers at engine houses. Each fire station is equipped to hear all calls transmitted by the dispatcher and vehicles. Ultimately, all 75 vehicles will be radio-equipped. Fire dispatching is done wholly by radio. To overcome pumper noise, an auxiliary marine speaker is mounted beside the seat, and a telephone hand-set with a noise-canceling microphone is used. A special 10-watt amplifier will increase receiver volume, if necessary.

Automatic Rebroadcast System

Another outstanding feature of the system is the automatic rebroadcast system, which eliminates rebroadcasting by dispatchers and thus saves time in relaying emergency information or description. It also permits three-way conversation over long distances. This is particularly helpful in a police chase or in controlling all activities of fire-fighting from the chief's car.

Eleven days after the Fire Department's radio equipment went into operation, a two-story brick building, razed by a nine-hour fire, collapsed. Master Mechanic Braun said that the new radiotelephone proved its usefulness during that fire by cutting down time lost in calling for more pressure from pumpers. "Twenty-one hose lines criss-crossed the streets in a maze, and thousands of spectators jammed the five-block area surrounding the blazing building. We would have wasted considerable time and manpower tracing those lines back to the pumper."

This was one of the largest fires in the history of the city. It showed Indianapolis that its radio equipment will make 1948 fire-fighting easier than in 1947, when 4,691 alarms required the services of 17,935 pieces of apparatus that traveled 40,859 miles. There were 18 major fires during the year calling for two alarms or more.

Large Special Districts Advocated To Help Solve Metropolitan Problems

CREATION of a new type of large administrative districts to be given broad powers with respect to metropolitan area problems is recommended by John C. Bollens in an article "They All Want to Stay Out," appearing in the June issue of the *National Municipal Review*. The article is a summary of a section in the recently published comprehensive report, *The Problem of Government in the San Francisco Bay Region*,* which describes efforts to work out solutions to mutual problems of the city-county of San Francisco and the county of San Mateo.

Proposal Summarized

The summarized proposal follows:

Among governmental devices tried in the San Francisco Bay nine-county region, the large special-purpose district has proven most successful in lessening or eliminating regional problems. The East Bay Municipal Utility District, for example, supplies water to nine cities, six county water districts, and ten unincorporated areas.

Since the consolidation plan has little chance of being adopted in the foreseeable future, the large special or administrative district is more feasible if its two customary weaknesses — increasing the excessive number of existing elected officials and contributing to the overbalance of tax pyramiding—can be rectified.

This device can be used in the San Francisco-San Mateo area and in other metropolitan centers, and these two defects can be avoided.

The key to the solution is the passage of general state enabling legislation permitting creation of large intercounty special or administrative districts.

Representation

The governing board should be composed of city councilmen or mayors and county supervisors of local units included within the territorial limits of the district. This board, composed of members of local legislatures operating within the district boundaries, will not increase the number of elected officials. Neither is it likely that it will become involved in the high degree of friction frequently existing among elected councils and boards.†

Tax pyramiding in the same governmental area, the other frequent inadequacy of special-purpose districts, will also be avoided. It seems logical that the district directors, who are simultaneously helping to direct other governmental units in the area, will give considerable attention to adequate financial planning. If the district possesses tax-levying power, the directors will consider the over-all tax revenue needs of the cities, counties, and the administrative district. It seems probable that if the district budget must be approved by individual governing boards, such as city councils and county boards, which have director representatives, careful consideration will be given to intelligent fiscal management.

Broad Powers Needed

The administrative district must be given powers commensurate to the wide scope and serious nature of the problems with which it will be faced. Powers granted under the California Municipal Utility Act of 1921, relating to matters such as transportation, water, light, power, sewage, refuse and garbage disposal seem appropriate for this type of district. The most aggravated problem is transportation and transit. An additional field in which it might participate is highway planning.

This suggestion is politically feasible since there are many special-purpose district acts in operation in California and since there is little or no public antagonism toward the concept "special district" as against "consolidated government." If comparable administrative districts are concurrently organized in other parts of the Bay metropolitan region, it is not inconceivable that they will eventually merge so that certain major regional problems can be dealt with most efficiently. The much-discussed consolidation plan will then be arrived at by an indirect means.

* Published by the Bureau of Public Administration, University of California, Berkeley, May 1948. 162 pp. Paper bound, $2.00; cloth bound, $3.00

† Mr. Bollens points out in the full report, however, that the basis of representation is the crucial point regarding these administrative districts, and makes specific suggestions as to what should be done.

Zoning and Planning Notes

Edited by NORMAN WILLIAMS, JR.
With the assistance of Frank B. Williams and Edward M. Bassett

Fish Canneries—County Zoning—Approval of Planning Commission

CALIFORNIA. *Johnston* v. *Board of Supervisors of Marin County*, 187 Pacific (2d) 686 (California Supreme Court, November 9, 1947).

A fish cannery and reduction plant was planned in an unincorporated section of Marin County, in a heavy industrial zone and about a mile from plaintiff's residence. Under the State Planning Act, the County legislative body was given discretion in determining the proper procedure for putting that act into effect. In the zoning regulations adopted by Marin County for heavy industrial zones, use permits were required for a list of specified uses, including fish processing; and, if the County Planning Commission approved an application for a use permit, the County Supervisors then had the choice of approving or rejecting that decision. The ordinance contained no mention of any further action by the Supervisors when the Planning Commission disapproved a similar application.

In the case of the fish cannery proposed here, however, the County Supervisors not only ignored the Planning Commission's disapproval and granted the application for a use permit, but also adopted a new ordinance apparently relaxing the requirements for the proposed use without submitting the proposed amended ordinance to the Planning Board. The fish company was represented throughout the proceedings by the wife of one of the Supervisors, but, on a motion for reconsideration, apparently there was an independent majority of the Supervisors in favor of the changes. In the action, plaintiff alleged that the proposed plant would pollute both the air and the water near his property, and sought an injunction against both the grant of a permit and the adoption of the ordinance, in both instances primarily on the ground of lack of approval by the Planning Commission. The trial Court enjoined the Supervisors from issuing a permit, and also from publishing or putting into effect the amendments to the ordinance. On the appeal, defendant challenged both the juidiciary's right to restrain legislative action and the necessity of approval by the Planning Commission. The California Supreme Court upheld the injunction on granting the permit, and reversed as to the attempt to inhibit legislative action.

The provision in the injunction forbidding the Supervisors from promulgating the ordinance was first (and properly) held to be an unwarranted judicial interference with legislative action, particularly at a time when the ordinance was up for reconsideration. As for the chief question, the validity of the Marin County ordinance, the Planning Act was held to have authorized the County Supervisors—if they should so choose—to require a use permit for fish processing in heavy industrial zones, and further to require an affirmative approval of such a permit by both the Planning Commission and the County Supervisors. It was also noted that the definite procedure prescribed in the Planning Act for amending the ordinance had not been followed here. Finally, it was held that the Marin County ordinance in fact required the approval of both the Planning Commission and the Supervisors before the required use permit could be granted. The Planning Act was held not to require the Supervisors to retain undivided power over permits, and the Supervisors were also held not to have any inherent power to make such grants. A dictum in an earlier case that the Planning Commission was merely an advisory body was held to be irrelevant here.

In an elaborate dissent, three Justices argued that the statute made the Planning Commission merely advisory and that the Supervisors retained full power over issuance of use permits.

Grocery Stores—County Zoning

GEORGIA. *Lanier* v. *Richmond County*, 45 South Eastern (2d) 415 (Georgia Supreme Court, November 13, 1947).

Under a 1937 amendment to the Georgia Constitution, the State Legislature was permitted to authorize all city and county legislative bodies with a population of over one thousand to pass zoning and planning laws, to zone specified areas for various uses of land, and to prohibit other uses in such zones. The enabling Act authorized the County Commissioners to regulate construction and to zone territories as to the class of buildings constructed there. The Commissioners zoned a specified area to forbid all commercial uses, including grocery stores, with the usual provision against changing existing non-conforming uses. After the effective date of the ordinance, one Lanier converted a grist mill within the zoned territory into a grocery store. The County moved to enjoin the change. The Lower Court held in favor of the County, and the Georgia Supreme Court reversed.

In the opinion, the phrase in the enabling Act about regulating construction was held not to authorize any regulation of the use of buildings.

"It will be observed that, while the Act of 1939 grants authority to adopt ordinance as to the construction of buildings and additions or repairs thereto, and as to their location with respect to any public highway within the zoned area, and to determine the territory in the zoned area within which any particular class of building may be erected, it does not purport to grant authority to control the *use* to which any particular building may be devoted."

Garages—Variances and Spot Zoning Revocation of Permits

PENNSYLVANIA. *Ventresca* v. *Exley*, 56 Atlantic (2d) 210 (Pennsylvania Supreme Court, January 5, 1948).

Construction of a garage and repair shop for trucks, normally permitted only in industrial zones, was proposed by a sewer contractor for a large "unimproved" tract of land in a C residential zone, situated between industrial and commercial zones in the city of Philadelphia. When no objection appeared at a public hearing, the Board of Adjustment issued a certificate of variance authorizing the construction, with a recital that peculiar (but unspecified) conditions created a situation where strict enforcement of the zoning regulations would be an unnecessary hardship on the owner. Objectors then promptly appeared en masse; the Board held another hearing, resurveyed the situation, and proceeded to revoke the permit. On appeal, the lower Court overruled the Board and ordered the permit reinstated, but the Pennsylvania Supreme Court reversed that decision and upheld the Board's order of revocation.

After noting that no real showing had been made of special conditions creating unnecessary hardship, the Supreme Court quoted a series of strong statements from previous opinions indicating the type of extreme conditions necessary to justify a variance. In this case, therefore, the petitioner was in effect asking the Board to practice spot zoning by extending an industrial zone into a C residence zone, and the court emphasized that the power to change the boundaries of zoning districts was vested exclusively in the City Council. While the holding is obviously correct, one wonders whether a further statement made by the Court, that the plaintiff could not possibly have purchased the lots in reliance on a preconceived ability to get a variance, was realistic. The Court also held that evidence of a variance granted for a machine-tool shop across the street should never have been admitted or considered in the present proceeding. Finally, the Court held that, since in this case no facts existed to authorize any exercise of the Board's discretion as to variance in the first place, the question of the Board's power to revoke permits granted in the exercise of that discretion need not even be considered. However, it was noted that, if in another situation a permit had been granted and the owner had taken action and made expenditures in reliance on that grant, a vested right might be created and no revocation could be validly made.

Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Aircraft—Pilotless Balloons Towed From Motor Boat

Where motor boat towed pilotless balloon near beach, held that such balloon was an aircraft within meaning of New York City administrative code provision forbidding operation of aircraft within 1,000 feet of beach. *People* v. *Harrow*, 76 N.Y.S. (2d) 891 (N.Y. Magis. Ct., N. Y. C., Jan. 6, 1948).

Airports—Ordinance Directing Purchase or Condemnation of Realty For—Not Exempt from Referendum

In mandamus to receive referendum petition on City of Tacoma ordinance directing purchase or condemnation of realty for airport purposes, held that such ordinance was not emergent so as to be exempt from referendum provisions. *State ex rel. Gray* v. *Martin*, 189 Pa. (2d) 637 (Wash., Feb. 13, 1948).

Assessments—Street and Sidewalk Improvements—Knowledge of by Abutters—Failure to Object

Where abutting landowners knew of city street and sidewalk improvements and did not object to such improvements until after completion and until receipt of assessment therefor, held that landowners could not object on ground that no written notice as to adoption of resolution of necessity for improvements had been served on them. *Schmidt* v. *Village of Deer Park*, 78 N. E. (2d) 72 (Ohio App., Hamilton Co., Nov. 17, 1947).

Bonds—Issue of Under Statute Repealed by Invalid Statute—Effect

In mandamus by city to compel state auditor to register sewer bonds issued under statute, repealed by invalid statute, held that court properly directed state auditor to register bonds as bonds recited that they were issued under statute and any "valid" amendments thereto. *Kansas City v. Robb*, 190 Pac. (2d) 398 (Kan., Mar. 6, 1948).

City Employees—Conduct Record of Streetcar Motorman Not Privileged Communication Under City Code

In action against city for alleged assault and battery on plaintiff by motorman on city's streetcar, on ground that city knew motorman had vicious propensities, held that general manager of city's transit system, who was served with a notary's subpoena duces tecum, was not justified in refusing to produce motorman's conduct record in possession of city attorney, and that record was not privileged communication under city's municipal code. *Parkhurst* v. *City of Cleveland*, 77 N. E. (2d) 735 (Ohio Ct. Com. Pleas, Cuyahoga Co., Dec. 3, 1947).

Civil Service—Conduct of Examinations When No Vacancy Exists—Reasonableness

In action to annul examination of New York City Civil Service Commission, held that finding by commission that examination was practical would not be disturbed even though no vacancy for position for which examination was given existed. *Feingold* v. *Morton*, 76 N. Y. S. (2d) 908 (N. Y. Sup. Ct., N. Y. Co., Feb. 16, 1948).

Garbage—Liability of City for Damage Caused by Collection Truck—Proprietary Function

In action for damages caused by collision with city's garbage collection truck, held that in collecting garbage city was acting in proprietary capacity and hence liable for injuries caused. *Gravender* v. *City of Chicago*, 78 N. E. (2d) (Ill., Mar. 18, 1948).

Markets—City as Bailee of Merchandise in During Hours Closed—Liability of City for Loss by Theft

Where city owned public market and maintained exclusive control over building and contents during hours market was closed, held that bailment was created with city as bailee, but no liability attached to city for loss caused by theft during night where reasonable care for safety of merchandise in market was exercised. *Charnov* v. *City of New York*, 77 N. Y. S. (2d) 770 (N. Y., Mun. Ct., N. Y. C. Feb. 15, 1948).

Notice of Claim—Leave to File After Expiration of Time Limit—Fraud As To Disability

Where order permitted late filing of notice of claim, held that such order would be vacated where it was shown that order was obtained through fraud as to disability for which damages were claimed. *Rudolph* v. *City of New York*, 77 N. Y. S. (2d) 788 (N. Y. Sup. Ct., N. Y. Co., Dec. 31, 1947).

Parking Meters—Validity of Ordinance to Purchase Under Conditional Sales Contract Without Submitting to Voters

Where city granted vendor conditional sales contract for parking meters to be installed at locations determined by city, used and operated under its control, and paid for by revenues received therefrom, held that an ordinance was not invalid as granting "franchise" to vendor without submission to vote by city's freeholders, that installation of parking meters is not unconstitutional as establishing toll roads, and that parking fee charged is not a tax but a license fee which may be levied under city's police powers. *Glodt* v. *City of Missoula*, 190 Pac. (2d) 545 (Mont. March 6, 1948).

Parks—Use of for United Nations Meeting Place Held Permissible

In action to set aside use of public building on park lands by General Assembly of United Nations, held that parks, while generally inalienable, may be temporarily used for an obvious public purpose. *Curran* v. *City of New York*, 77 N. Y. S. (2d) 206 (N. Y. Sup. Ct., Queens Co., Dec. 29, 1948).

Pensions—Disability—Statute of Limitations Barring Claim—Reliance Upon Statements by City Officials

In action to compel granting of pension to disabled city fireman, held that plaintiff could not rely on ground that city officials were estopped from pleading statute of limitation because of their statements that plaintiff could not recover both pension benefits and proceeds of Workmen's Compensation Law. *Tyra* v. *Board of Police and Fire Commissioners of City of Long Beach*, 189 Pac. (2d) 754 (Cal. App., Feb. 20, 1948).

Pensions—Policemen—Computation Of Service Where Officer Had Been Suspended Several Times

In certiorari to review action of city police and firemen's pension fund commission in denying police officer pension after 20 years' service where the commission had suspended officer several times during 20-year period, held that under statute where officer had been suspended without charges being preferred against him and he was subsequently reinstated, time elapsed during suspension should be computed as time in actual service and police officer should be allowed pension. *Pangburn* v. *Ocean City Police and Firemen's Pension Commission*, 56 Atl. (2d) 914 (N. J. Sup Ct., Feb. 3, 1948.)

Refunding Bonds—Power to Issue Where No Refunding Recital Contained in Original Issue—Effect of Subsequent Statute Authorizing Refunding Operation

Where city amortization bonds contained no recital as to redemption before maturity, held that city was powerless to issue refunding bonds notwithstanding subsequent statute authorizing refunding operations. *City of Phillipsburg* v. *Porter*, 190 Pac. (2d) 676 (Mont., Mar. 11, 1948).

Rent Control—City Ordinance Regulating Rates for Hotels Declared Unauthorized

In action to enjoin enforcement of city rent-control ordinance, held that statutory provisions conferring authority on city to promote health and pass all reasonable police ordinances did not confer authority to regulate and control maximum rentals on hotels housing more or less permanent guests. *Ambassador East* v. *City of Chicago*, 77 N. E. (2d) 833 (Ill., Jan. 22, 1948). Reh. den. Mar. 15, 1948.

Salaries—Duty of Council to Fix for Employees—Delegation to City Board Invalid

In mandamus to compel City of Bowling Green auditor to issue salary warrant to superintendent of sewage-treatment plant, held that city council could not delegate power to fix salary of superintendent to Board of Public Affairs and mandamus would not lie to compel payment of compensation fixed by Board. *State ex rel Urschel* v. *Coller*, 78 N. E. (2d) 77 (Ohio App., Ward Co., Dec. 9, 1946).

Schools—Use of After School Hours—Power of Board to Determine Without Court Interference

In mandamus to compel Board of Education to adopt resolution denying use of schoolhouses after school hours to Communist, Nazi, or Fascist groups or organizations that foster intolerances, held that since board members had, after careful deliberation, refused to adopt such resolution, the Courts would not interfere with their discretion. *Stanton* v. *Board of Education of City of New York*, 76 N. Y. S. (2d) 559 (N. Y. Sup. Ct., Kings Co., Jan. 24, 1948).

Streets—Liability of Abutter to City—Notice of Defect to Abutter

Where city raised portion of sidewalk 2½ inches above old level and pedestrian sustained injury by fall due to difference in level where old and new walk joined, held that in absence of notice from city to abutting landowner to raise old walk to meet new level, abutting landowner would not be liable over to city for damages paid by city to injured pedestrian. *Golden* v. *City of Philadelphia*, 57 Atl. (2d) 429 (Pa. Super. Ct., Mar. 8, 1948).

Taxicabs—Discrimination by City Against Operators in Use of Taxi Stands

In action to restrain enforcement of City of Atlanta taxicab ordinance provisions relating to call box stands, because of petitioner's inability to be heard in police-court cases involving arrests under such provisions, held that city could grant permission to other taxicab companies to use specified cab stands to exclusion of petitioner and equity would neither assist nor restrain a criminal procedure. *Atlanta Veterans Transportation Inc.* v. *Jenkins*, 47 S. E. (2d) 324 (Ga., Mar. 19, 1948).

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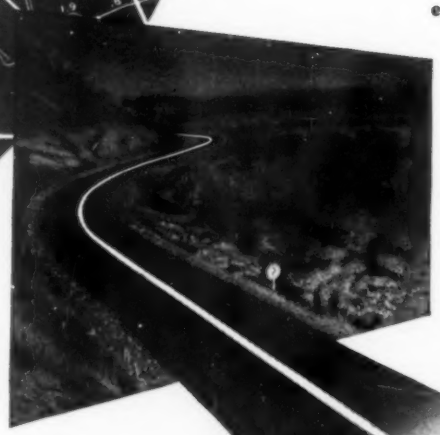

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Traffic Control and Facilitation

When Should a Parking Meter Retire?

IN 13 of 20 cities recently surveyed by the International City Managers Association, the original meters are still in service after 10 or more years. Officials of eight cities estimated the economical life of their meters as from 10 to 15 years and seven other cities report that clock mechanism will run from five to eight years without excessive repairs, while the life of the case is indefinite. Officials of five cities say the economical life of meters is 10 years.

The cost of making collections and the maintenance of meters in terms of percentage of gross meter receipts range from 5 to 20% for 17 cities reporting, and the average is 10%.

Making Collections

Collection of coins from meters is handled by the finance department in Houston, Kansas City, Omaha, Portland, and Toledo; by the police in Auburn, Austin, Bluefield, Dallas, El Paso, Fort Worth, Long Beach, Miami Beach (police civilian employees), Montclair, Norfolk, St. Petersburg, and Wichita Falls. In these cities, the police turn the money over to the finance department. Miami employs an armored service company to make the collections.

The frequency of making collections ranges from daily collections in Auburn, El Paso, Fort Worth, Houston, and Wichita Falls, to once every 10 days in Miami. Cities making collections every other day are Austin, Dallas, Long Beach, Norfolk, Toledo, Watertown, and Wilkes-Barre. Portland collects every three days except in the 30-minute area, where collections are made every day. Cities that collect the coins once a week are Kansas City, Miami Beach, Montclair, Omaha, and St. Petersburg.

Out-of-State Cars

Fourteen of the 20 cities make no distinction regarding out-of-state cars that violate parking meter regulations. Fort Worth and Portland do not tag an out-of-state car for a violation if the car shows signs of being in transit. In Dallas and a few other cities, any waiver of the fine is determined upon information obtained when the party appears to pay the fine.

Nine of the 20 cities make no special provision for free use of metered areas by delivery trucks. The 11 other cities allow such use, but generally with some restriction. Free parking is permitted in Auburn and Austin while deliveries are made, and small delivery trucks in Bluefield are allowed to park free as close as possible to their places of business.

During the construction and repair of buildings in Dallas and Portland, contractors may make free use of metered area adjacent to such areas, when the contractor has a building permit. Dallas also permits trucks to park free in metered spaces from 7 a.m. to 10 a.m. Delivery trucks may park free in metered areas up until 10 a.m. in Fort Worth, to 10:30 a.m. in Portland, for 30 minutes in Norfolk, and from 7 to 9 a.m. in Toledo. Forty-foot loading zones have been created in each business block in Montclair. Long Beach permits emergency free use of parking meter areas, and St. Petersburg permits trucks to use metered spaces without depositing coins when loading or unloading.

Meters were purchased on "open" specifications in most of the 20 cities. In Dallas and Houston the specifications were "open" only to the type selected, automatic or manual. Three cities paid for meters from general revenues (Norfolk, Toledo, and Wilkes-Barre), and others paid for them over a period of months by giving the meter company one-half the monthly gross receipts.

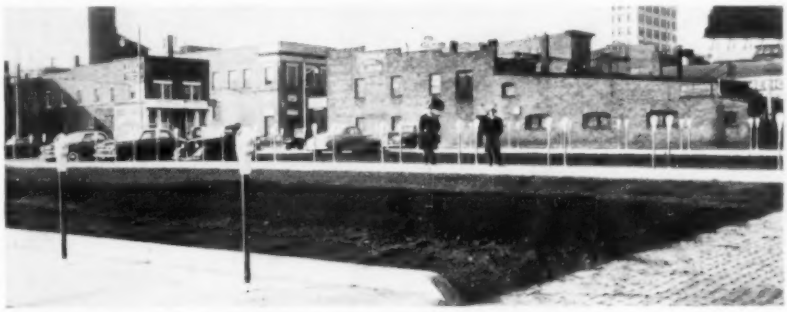
Streetcars to Buses to Trolley Coaches

CONVERSION of the 51st to 55th streetcar line in Chicago, Ill., to an all-bus route was completed May 30 with the assignment of 40 new 44-passenger motor buses to the route.

These motor buses will soon be replaced by modern trolley coaches, says General Manager Walter J. McCarter of Chicago Transit Authority. This change-over to electric-bus operation, the final step in the modernization of this line, will start as rapidly as coaches are delivered. The first 45 of an order of 210 are already in service.

The end-to-end conversion of the 51st to 55th line will restore through service from 55th Street and Lake Park Avenue to Central Park Avenue, by way of 55th Street, Cottage Grove Avenue, and 51st Street. Restoration of through service with all new equipment will be accompanied by more frequent service.

Danville's Metered Lot



This 70-car metered parking lot provides around-the-clock parking.

Danville's Metered Lot

LAST fall, we installed 300 parking meters on Danville's streets. Because of our success with these meters—the stimulus of traffic turnover and the additional municipal revenue—we decided to set up a municipal metered-parking lot. Our lot has met with enthusiasm from both citizens and visitors.

This 70-car lot is located at a convenient site, only two blocks from the shopping district. The Park-N-Lot model meters are operated by nickels and quarters, the parker receiving two hours for a nickel and five hours for a quarter. All meters operate on an around-the-clock basis.

The $5,000 cost of installation was higher than that of most cities, because clearing the lot required tearing down a building and digging up buried oil tanks. Our weekly revenue averages from $35 to $40 weekly.

Commissioner of Accounts and Finance, Danville, Ill.

CUMULATIVE? **Yes**

The new Model G PARK-O-METER is interchangeable for either cumulative or wipe-off time at the flick of a lever in the mechanism.

UNIVERSAL? **Yes**

Model G PARK-O-METER permits instant interchange of dials: short time, 1-hour or 2-hour. Also affords 24 coin-time combinations.

AUTOMATIC? **Yes**

Naturally the New Model retains the modern, completely automatic operating mechanism that has set PARK-O-METER out in front.

DIE CAST CASE? **Yes**

The new die cast case gives improved protection against dust and moisture and adds a smooth beauty and brilliance.

RED ARROW COIN SLOT? **Yes**

The coin-slot marker, cast into the case, colored a brilliant red, adds to simplicity of operation; increases public acceptance.

All these Features are Built into the New CONVERTIBLE PARK-O-METER MODEL G

Without increase of one penny in cost, these new features give PARK-O-METER every advantage suggested by municipal officials throughout the nation. Every feature is incorporated in the engineered precision mechanism so that interchangeability to meet every need is *instantaneous* without use of extra parts. The durable, trouble-proof mechanism is designed for minimum maintenance time and expense. Many damaged parts are instantly replaceable without taking meter out of service.

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Williamsport, Pa., Relieves Traffic Delay In Business District

By LEO C. WILLIAMSON, *Mayor*

LIKE many other cities of like size faced with the problem of rapidly increasing traffic volume on streets marked and regulated by devices appropriate to the lighter flow of wartime traffic, we became alarmed recently at the rising accident rate and the creeping, fender-crushing web of traffic congestion which threatened paralysis of the city's business district. Even for past years our traffic record had not been good. During the past seven years, 41 persons had lost their lives in traffic accidents, and 1,225 had been injured. The city estimated traffic accidents were costing its citizens $9,000 per month.

The worst situation existed on Third and Fourth Streets in the shopping section. Third Street, which carries the heaviest traffic load, averaged 480 vehicles per lane per hour during the average week-day afternoon. Trucks and buses crept along at 7 miles per hour on both streets, and even during the lighter traffic periods they could travel at little more than 9 miles per hour.

To attack this problem, the city requested traffic engineers of the National Conservation Bureau, the accident prevention division of the Association of Casualty and Surety Companies, to make a comprehensive survey of its traffic situation. Expenses for the survey were paid by the local newspaper, the Sun-Gazette Company, as a contribution to the welfare of the community. The result of the survey by these safety and traffic experts was a report outlining Williamsport's growing pains and embodying a detailed list of 43 recommendations to correct them. Several of these recommendations were put into effect before the conclusion of the survey, and results have been more than satisfactory.

On Third and Fourth Streets three major and one minor change were made in existing traffic control. The survey report stated that the electric traffic signals at six thoroughfares intersecting Third and Fourth Streets were improperly timed. These 12 signals were on a 60-second cycle. A recommended change to a faster 45-second cycle was immediately adopted by the city, with the wires leading to several of the signals switched so as to afford an alternate system. This type of timing now produces a wave of green lights going down the street at 15 mph. This timing can be followed by drivers in both directions, requiring no stops at all once the driver gets in step with the green wave.

Left-turning vehicles frequently were observed delaying through traffic. Volume count showed that left turns were taking place at signalized intersections, thereby disrupting 82% of traffic proceeding straight through. "No Left Turn" pedestal signs were placed at three of the six signalized intersections on each street between 3:30 and 5:45 p.m. each day. Left turns were allowed at adjacent intersections. Two minor cross-streets were made one-way to encourage the left turns into these streets.

The minor change effected was that traffic signals remain in operation until 1 a.m. instead of the previous midnight shutting-off time, because it was found that a considerable number of accidents were occurring between 12 p.m. and 1 a.m.

All of these solutions required a minimum of time and effort and practically no expense. The decrease in fatalities and injuries, the savings in accident damages, and the value to business houses have been considerable.

These activities in Williamsport, a city with a population of 50,000, can be a model for other cities of similar size and with similar traffic problems. The National Conservation Bureau traffic engineers have made surveys of traffic conditions in several other cities of various sizes.

Let's Walk Off Downtown Congestion

MAKING pedestrians the kings and queens of downtown traffic is the interesting proposal put forward by Simon Breines and John P. Dean in a detailed discussion of "City People on the Move." Below is afforded the barest glimpse of the plan.

Why don't we solve the traffic problem by walking? The usefulness of the automobile is crippled when large numbers of motorists try to move in cross directions within a small area. Foot locomotion becomes increasingly efficient as more people try to get around within such an area. Perhaps traffic specialists have overlooked their best bet—pedestrian engineering.

The simplest measure for easing pedestrian flow is extending the areas where vehicles may not operate. The 1939 World's Fair was a 120-acre "pedestrian island," a paradise that encouraged wear of shoe leather. There should be more of those in each city having a severe congestion problem. To take care of the cold and rainy foot travel, there could be a different type of transportation vehicle patterned after the railroad platform electric vehicles, small, slow-moving, and sinuous.

Major traffic attention is directed to moving vehicles. The stress has been on wider streets and speedways, supersized and even faster vehicles and their control. The result is ever more unpleasant downtown driving. Instead, why not close off Fifth Avenue from Central Park to 34th Street and lay a boardwalk on the roadway? Delivery trucks and fire apparatus could still enter the Avenue, but many motorists would soon see the point of not trying to drive everywhere. Of course the big point is that by considering people instead of their vehicles a much more agreeable city life would develop. Within the pedestrian islands, tractor-trains, something like those of the World's Fair, could provide the local riding necessary therein.

Needless Congestion of Business Districts

A TYPE of decentralization of business activities that should not depress tax values but would reduce traffic congestion was recently proposed by John V. Lawrence, managing director of the American Trucking Association, Inc., Washington, D. C. He urged a selling program to convince certain businessmen of the advisability of locating their offices away from congested downtown areas. "Each of us," he says, "can think of hundreds of instances of businesses that have located themselves in the most congested areas of a city but transact little business directly with the people in that area. Most of their business, instead, is by mail or by telephone, either locally or more often to distant cities.

"A main office of an insurance company is a striking example of such a situation. The building is used solely by the office staff, with very few exceptions. The only others who enter the building normally are a few salesmen of office supplies. All insurance sales work is done outside of the building."

Mr. Lawrence pointed out that the most grandiose plan of expressways will serve to speed traffic over or around a congested area, but makes no new provision for the congested area itself. The only cure for the situation is relocation of some businesses and remodeling of the buildings occupied by those that must remain in the downtown area, in order to provide adequate facilities for handling their inbound and outbound freight.

advantages of the MI-CO meter hooded coin slot

Coins are slid up under the hood and against the protecting plate at top, then released. They drop part way down and to the left, and then through the meter when handle is turned.

Side view shows position of MI-CO Meter protecting plate at the top and back of the coin slot.

This illustration shows how difficult it is to introduce foreign objects into a MI-CO coin slot. Should it be accomplished, however, the object drops harmlessly through the slot without damaging the mechanism. A serviceman may easily remove any obstruction right at the meter location.

The hood over a MI-CO Parking Meter coin slot protects against snow, ice and freezing rain clogging the slot and preventing the insertion of coins. This is a very important consideration in locations where winters are severe. MI-CO Parking Meters may be depended upon to keep operating in all kinds of weather.

And the hooded coin slot is only one of many advantages to be found in MI-CO Meters. Others are: Fewer moving parts (as low as five on some models); rugged construction; simplicity; unusually low maintenance; quick servicing—right at meter location.

If you are considering the metered plan of parking, be sure to learn what Michaels has to offer. Write, wire or phone for the complete story.

MI-CO METERS, 231 Court St., Covington, Kentucky
Division of The Michaels Art Bronze Company

Automatic Daily Log Of Collection Trucks

By RAYMOND J. ROUSE, *Supervisor Waste Collection Equipment Cincinnati, Ohio*

REFUSE collection in the City of Cincinnati puts motor equipment to a severe test on grades ranging up to 25% or more. Every street and alley in the city must be serviced, regardless of its width, condition, or gade. The collection service is performed on schedule daily, twice a week, or weekly, as required. The entire operation is in city traffic.

tive. Instruments for this purpose add to the purchase price of the vehicle, but when depreciated over the life of the vehicle their cost is small. They are a valuable aid, and they save many times their original cost in increased efficiency, higher availability, and lower maintenance cost.

It would probably be a practical and economically sound policy to expend up to, but not over, 1% of the purchase price of new refuse-collection motor equipment for instruments to record

Over the Road	*Major Portion Loading and Unloading*	*Major Type of Operation*	*Hours of Operation*	*Approximate Road Miles*
Motor Transport	Dock	Inter-city	2,000	60,000
Privately Owned Pleasure Car	Curb	City or suburban	365	7,000
Refuse Collection Vehicles	Curb	Off the road	2,000	6,000

The equipment requires high accelerating ability with sufficient power and brakes for starting and stopping operation on steep hills. The equipment, when being loaded, must make many stops and starts, and moves very slowly in the house-to-house service, which requires hours of operation in low gear; also, the engines are used to compress the refuse into the bodies from a rear hand-loaded hopper. The engines, transmissions, rear axles, clutches, and brakes cannot be properly serviced on a straight mileage basis, because these vehicles will operate an average of 2,000 hours and only 6,000 road miles per year.

For comparison, there is listed below a rough approximation of mileage obtained in the Cincinnati waste-collection service, as compared with other motor vehicle operations in this locality.

It is evident that comparison of accident rate, exposure to accident, or the required maintenance service cannot be accommodated very well on a strictly road-mileage basis. The only satisfactory method of maintenance service we have found effective on our refuse-collection vehicles is on an hour-mile, engine-mile, gear-mile basis.

In a recent purchase of some 47 new refuse collection vehicles, a recorder was incorporated in the equipment to note the hours of operation, vehicle speed, idle time, and distance traveled for each day's work. These recorders assist in checking our operation to increase operating efficiency, to guard against excessive speed, and to make our maintenance service more timely and effec-

engine miles, road miles top engine speed, top road speed, and hours of operation, all of which can be of considerable help in the control, maintenance service, and conservation of the equipment.

Modernizing Transit in Difficult Terrain

SAO PAULO, Brazil, is one of the fastest-growing municipalities in the world, with a present population of 2,000,000 compared with 1,323,000 in 1940. Its area of 602.7 square miles is nearly double the area of New York City. Its greatest distance is 47.3 miles.

Mass transportation totals 700 million riders annually; handling that business with 580 buses and 588 trolley cars is quite a feat—especially when the ancient trolley include 62 open trailers, 406 open cars, and nine workmen (second-class) cars. Discussed for 23 years, a modernization project is now moving forward under the direction of Ralph Wesley Jones, consulting engineer of Philadelphia, Pa.

The greatest difficulties are caused by the typically Brazilian type of rugged terrain, one of the most uneven to be found in any city. The difference in elevation from lowest to highest points in the city is about 374 feet, but that does not illustrate the difficulty of traversing steep ridges that radiate in all directions from the old "downtown" section; again, even these ridges are most uneven as to their elevations.

Study and design problems are further increased by the pattern of the narrow, winding, and almost precipitous streets. Nomenclature for the streets and avenues has followed an arrangement by which a new name may be used for every few blocks—the names honoring some figure or date in history, such as, Rua Vinte e quatro de Maio, Avenida Nove de Julho, Avenida Dr. Arnaldo V. Carvalho, Rua Dr. Jose Candid Souza, or even Rua Itamirindiba.

1.17 Taxicabs Per 1,000

SOME 70,000 licensed taxicabs currently are operating in the 1,072 cities with a population of over 10,000, according to a study of taxi operation made for the 1948 *Municipal Yearbook*, to be published by the International City Managers Association. In the 834 cities reporting, there are 64,985 cabs, or 1.17 per 1,000 population. New York City has almost one-fifth of all the cabs in all cities over 10,000—with a total of 11,814 registered taxis.

The number of cabs permitted to operate in most cities is determined by the city council.

Annual license fees for cab operators are based on the number of vehicles in 411 cities. Among the 432 other cities, 115 levy graduated fees; 19 charge fees based on gross receipts; and seven charge a flat fee on the operator or company only. Atlanta, Ga., has a license fee based on a graduated tax measured by the mileage run by each cab per month. San Leandro, Calif., taxes cab companies on the basis of the number of their employees. Fees range from $1 to $100 per taxi.

Not quite half of the 834 municipalities reporting also require the cab driver to pay a license fee, ranging from 25 cents to $25 per year, with most of the cities charging $1 to $2.

Erie's Parking Meters

DURING January of 1947, 637 Mark-Time parking meters were installed on some of the principal streets of Erie, Pa. Owing to the blizzards of that month and the unfamiliarity of motorists with the use of parking meters, the collections from this source did not reach their stride until April. Collections in 1947 amounted to $51,728.50. Maintenance costs, services, and 50% remittances to the manufacturer to apply on purchase price amounted to $29,342.95.

These meters have received general acceptance from our motorists. One now can drop a penny in any one of these parking meters opposite a market, pick up a basket of potatoes from the seller, bring it out to his automobile, and all within the time limit of twelve minutes. Recently 600 additional parking meters were installed.

BLUE PRINT FOR *Better Living*

PICTURED above is a night view of Mt. Morris, Illinois —a good place to live, a place where you can see where you're going after dark.

Mt. Morris can boast of such qualities because, like Park Ridge, Aurora, La Grange and other northern Illinois communities, it enjoys the benefits of a modern street lighting system, that was scientifically planned *before* it was installed.

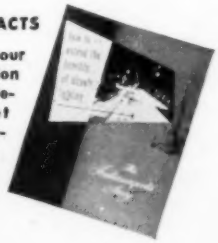
This method of pre-planning good street lighting, though not unique, has been perfected in this area through the joint efforts of local officials and electric utility companies. Briefly, it consists of (1) a thorough survey of needs—present and contemplated; (2) a realistic recommendation for improvements based on those needs — establishing priority for locations where new lighting is most needed; and (3) the provision of the right *amount* of light, uniformly distributed and properly arranged, combined with adequate maintenance.

Typical of the public enthusiasm that results is the comment of M. F. Dorothy, Chairman, Retail Merchants' Div., Aurora Chamber of Commerce: "(Our) modern street lighting has reduced traffic hazards and encouraged night window shopping. I consider well-lighted streets a MUST in any city building program."

To Public Service Co. of Northern Illinois, Western United Gas & Electric, Illinois Northern Utilities Co., and Commonwealth Edison belongs the credit for an outstanding job of public education, sound engineering and *service* that anticipates the needs of the people.

FOR MORE FACTS

To round out your file of information on current, noteworthy street lighting improvement projects, send today for "The Indianapolis Story".



The Street and Traffic Safety Lighting Bureau, 155 East 44th St., New York 17, N. Y.

Kansas City's New Lighting Begins Saving Lives

By T. J. SEBURN
Traffic Engineer
Kansas City, Mo.

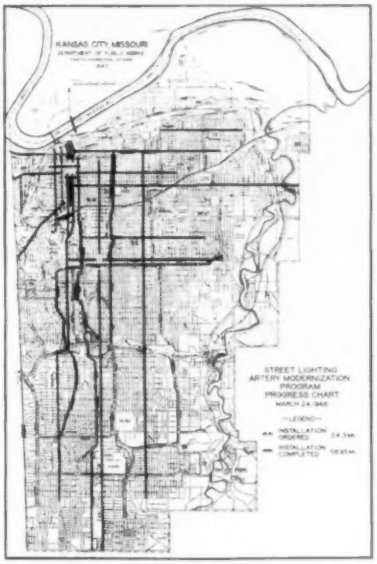
THE street-lighting modernization program on which Kansas City, Mo., has embarked was described in a major article in THE AMERICAN CITY for April 1946. The present article is in the nature of a progress report pointing out some of the benefits already derived from the lighting program.

The program divides into two general phases. In one group are included those streets and boulevards which are major arteries of travel. For those streets the new lighting is planned with an eye to traffic volume and accident data in the files of the traffic engineering office. The April 1946 article includes maps of these traffic arteries to be relighted, the locations of night traffic fatalities, and the high-fatality streets to be lighted first. On these arteries our plan calls for the installation of lighting in accordance with the standards recommended by the Illuminating Engineering Society.

In order to establish priority for these installations, the traffic arteries were further divided into groups. In one group are included those arteries where there are trolley poles or other overhead lines which made it practical to use existing poles for most installations and to use overhead circuits. It was necessary to make this division partly because at the time we started our improvement program, poles were not yet available, and partly because the Kansas City Power and Light Company, which owns and operates our system for us, has its work divided between an underground and overhead department.

The first chart in this article shows the installations actually made and those upon which construction is proceeding daily. It will be noted from this chart that 56.95 miles of arteries had been relighted by March 24. In the dashed lines are shown a total of 24.3 additional miles of orders that have been placed.

The large table shows the accident experience on a number of the streets that have been relighted to date. In the upper portion of this table are shown three streets totaling 6.97 miles upon which the lighting improvement was completed prior to January 1, 1947, and consequently the accident study is made for the year 1947 as compared with 1945 (1946 is omitted because the streets were partially relighted during that year). In the lower portion of the table is shown a group of arteries totaling 15.23 miles upon which a six



KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION

ACCIDENT COMPARISON BEFORE & AFTER LIGHTING IMPROVEMENT

IMPROVEMENT COMPLETED BEFORE JAN 1, 1947

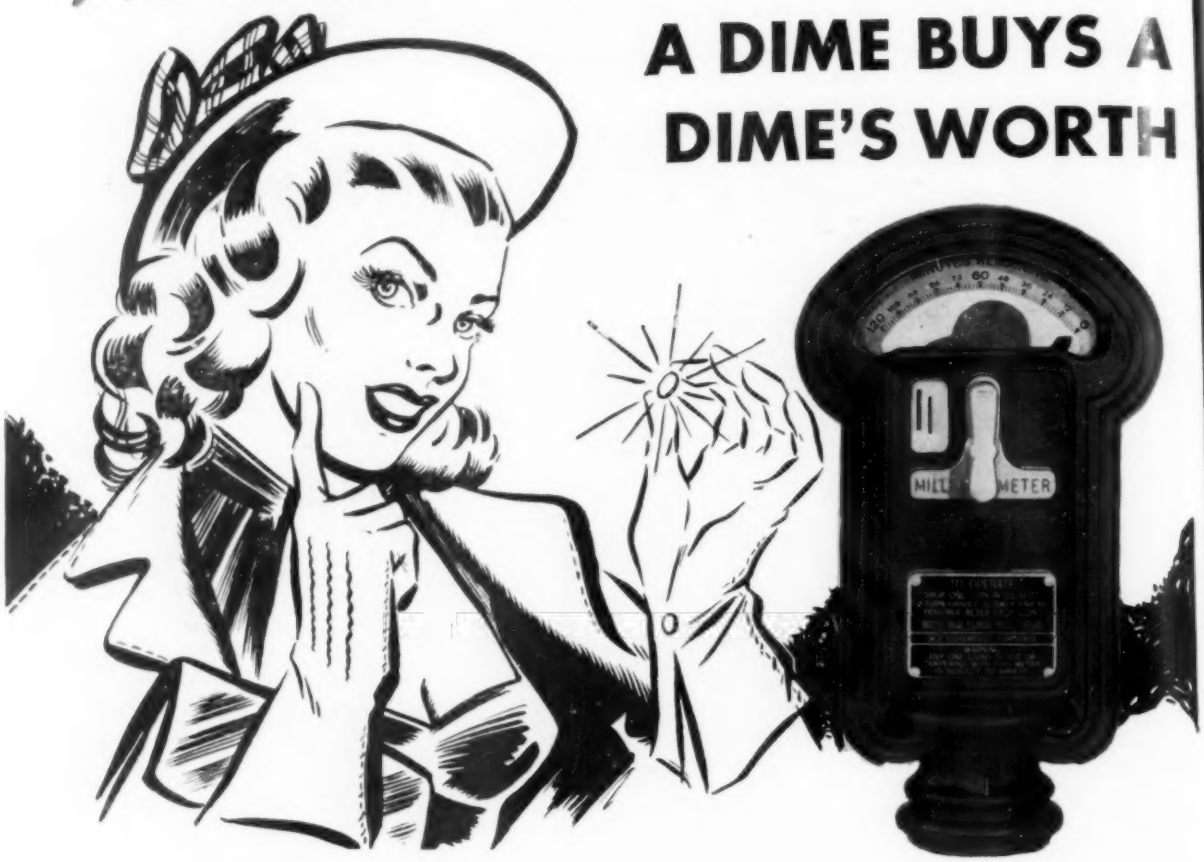
STREET	MILEAGE	ACCIDENTS YEAR 1947 DAY PROPERTY DAMAGE	DAY INJURY	DAY FATALITY	NIGHT PROPERTY DAMAGE	NIGHT INJURY	NIGHT FATALITY	TOTAL	ACCIDENTS YEAR 1947 DAY PROPERTY DAMAGE	DAY INJURY	DAY FATALITY	NIGHT PROPERTY DAMAGE	NIGHT INJURY	NIGHT FATALITY	TOTAL
MAIN STREET 3RD TO 43RD	3.85	124	45	0	77	49	3	297	205	19	2	92	10	1	328
WALNUT STREET 2ND TO 20TH	1.14	48	20	0	5	5	0	78	41	4	0	9	1	0	55
GRAND AVENUE 2ND TO 27TH	2.00	89	11	0	18	13	2	133	82	10	0	36	2	0	130
TOTAL	6.97	261	76	0	100	66	5	508	326	33	2	137	13	1	513

IMPROVEMENT COMPLETED BEFORE JULY 1, 1947

STREET	MILEAGE	ACCIDENTS JULY 1, 1945 TO SEPT. 1, 1946 DAY PROPERTY DAMAGE	DAY INJURY	DAY FATALITY	NIGHT PROPERTY DAMAGE	NIGHT INJURY	NIGHT FATALITY	TOTAL	ACCIDENTS JULY 1, 1946 TO SEPT. 1, 1947 DAY PROPERTY DAMAGE	DAY INJURY	DAY FATALITY	NIGHT PROPERTY DAMAGE	NIGHT INJURY	NIGHT FATALITY	TOTAL
12TH STREET BALTIMORE TO CITY LIMITS	5.23	30	19	0	61	25	2	137	126	9	0	80	13	1	229
INDEPENDENCE AVENUE GRAND TO HARDESTY	3.28	39	7	0	26	9	1	82	85	6	1	26	4	0	122
TROOST AVENUE 8TH TO 48TH	4.00	63	12	1	56	23	0	197	114	9	0	77	7	1	208
MAIN STREET 43RD TO BROOKSIDE	.67	3	0	0	3	1	0	7	9	0	0	7	0	0	16
BROOKSIDE BLVD MAIN TO MEYER	2.05	6	4	0	7	2	1	20	4	1	0	5	1	0	11
TOTAL	15.23	203	42	1	153	60	4	463	328	25	1	205	25	2	586
TOTAL ALL STREETS	22.20	464	118	1	253	126	9	971	654	58	3	342	38	4	1099

At Last!

A DIME BUYS A DIME'S WORTH



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Full value for a nickel
Full value for a dime!

YES, you can put a dime in the new, improved Miller Meter . . . and you get a dime's worth of time, not a penny's worth or two cents worth. And that's doubly important to the motorist who happens to have a dime but no nickels or pennies. Now, with the new Miller Meter, you get full value for your dime every time!

There is a great new Miller Meter for every type installation . . . from your busiest blocks to your all-day parking lots . . . every time and rate combination . . . every combination and sequence of coins.

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DUNCAN METER CORP.

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COMPLETE TRAFFIC SURVEY OF YOUR CITY, FREE ON REQUEST

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months' comparison of accidents is made. These streets were relighted between January 1 and July 1, 1947, giving us six months' experience. Although the mileage involved is still rather short and the period used for the comparison may be considered inadequate to make any final and positive statements as to the results, it is felt that the consistency represented in the accident studies is quite indicative of a major improvement in night traffic conditions.

Many comparisons can be made from this table, but one of the most significant is the night-to-day accident ratio, as follows:

	1945	1947
Property damage	0.55 to 1	0.52 to 1
Injury	1.07 to 1	0.65 to 1
Fatality	9.00 to 1	1.33 to 1

Many irregularities might be involved in a direct comparison of night accidents in 1945 and 1947. During most of 1945, wartime restrictions on gasoline curtailed traffic movements. Improved reporting of traffic accidents with the return of adequate manpower might have a tendency to make the 1947 record higher than that of 1945, especially in the less important accident categories. A traffic safety campaign inaugurated late in 1946 and carried into 1947 might have a significant effect upon the accident experience. By making a comparison of night-to-day accident ratios, these and similar factors are balanced out of the picture, and the improvement in lighting can be fairly assumed to be the reason for any improvement in accident experience.

It will be noted from this table that there is a slight improvement in the night-to-day ratio in property-damage accidents, a much greater improvement in injury accidents, and a very great improvement in the night-to-day ratio of fatalities. This bears out other studies which have indicated that the very minor property-damage accident is primarily a function of the probabilities as expressed by the number of vehicles on the streets, and that as the accident becomes more severe the experience is a function of driving conditions, an important part of which is the ability to see and discern objects in the roadway. Certainly if the above analysis is any indication of our continued experience, the citizens of Kansas City will be amply repaid for the taxes spent on street-lighting improvements.

Residential Lighting

As was pointed out in the beginning of this article, our modernization plan does not stop with the improvement of lighting on the major traffic arteries alone. In our residential areas, by far the largest percentage of our lights are of the 250-candlepower radial-wave type. We also have almost 1,700 gaslights distributed throughout the city. All these are considered grossly inadequate for modern lighting practices and will be replaced by luminaires of Type I, as shown in the Recommended Practices of Street and Highway Lighting 1945. Our average blocks are approximately 330 feet by 660 feet, and it is proposed to install a luminaire with four-way distribution at each intersection, and a luminaire with two-way distribution at approximately the midblock point on all of these long blocks. These will use nothing less than 400-candlepower lamps, and at many points they will be 600 candlepower.

A survey revealed that there are approximately 250 intersections on the residential or non-traffic streets that had no lights whatever. A number of these were in a newly acquired area to the south of the city, and a majority of the balance were in residential areas developed within the last few years. Lights will be installed here before the routine replacement of the old-style equipment is started. Most of these installations have been made; orders are on file; and additional installations are being made daily, which will accomplish this phase of the program. As soon as this work is completed, a regular program of replacement will be started, the priority for which has been developed from studies of night crime.

The crime chart (p. 123) is from police reports of crimes for which it is felt street lighting will be a deterrent. These include rape, homicide, robbery, and auto theft. The chart is based on a typical month and shows both the night and day experience.

Many of the streets in the area are lighted only with the old-style gas lights, and therefore a major improvement in this experience should be gained by concentrating the lighting work in this area.

Utility Cooperation

Although this article is not intended to be in the nature of a debate of the propriety of utility versus city ownership and operation of a street-lighting system, it is only fair to point out that without the cooperation of the Kansas City Power & Light Company it would have been impossible for Kansas City to make this improvement as rapidly as it is now being made. It would probably have required a bond issue to be submitted to the voters in order to obtain sufficient funds for the capital investment involved, and this would have meant delay. Through negotiations with the company, our contract for street lighting was amended, providing the flexibility required to engage in this program, and the company was able to obtain the necessary funds for the capital investment without the long delays involved in bond issues. The company is also carrying out the work of installation as expeditiously as possible, depending upon the delivery of materials and the ability to obtain manpower.

When a Flier Needs a Beacon

Line Material rotating beacon.

A LIFE saved is worth almost any expenditure. Jimmy E. Shirley of Salina, Kans., subscribes to this principle. At 10 p.m. of a recent Friday he found his personal plane short of gas and a dark world underneath—except for a revolving point of light that denoted an airport.

Don Pratt, operator of the Hays, Kans., airport was in his office when he heard Shirley's plane circling. Pratt turned on the boundary lights and drove his car up the runway to show the lost plane where to land. He parked with lights pointing down the runway.

After landing, Shirley ran over to Pratt's car and said, "I don't know who you are, but right now you're the best friend I have." He said he had completely lost his bearings, when he saw the light from the Line Material rotating beacon.

La Grange, Ill., Installs Good Residential Lighting

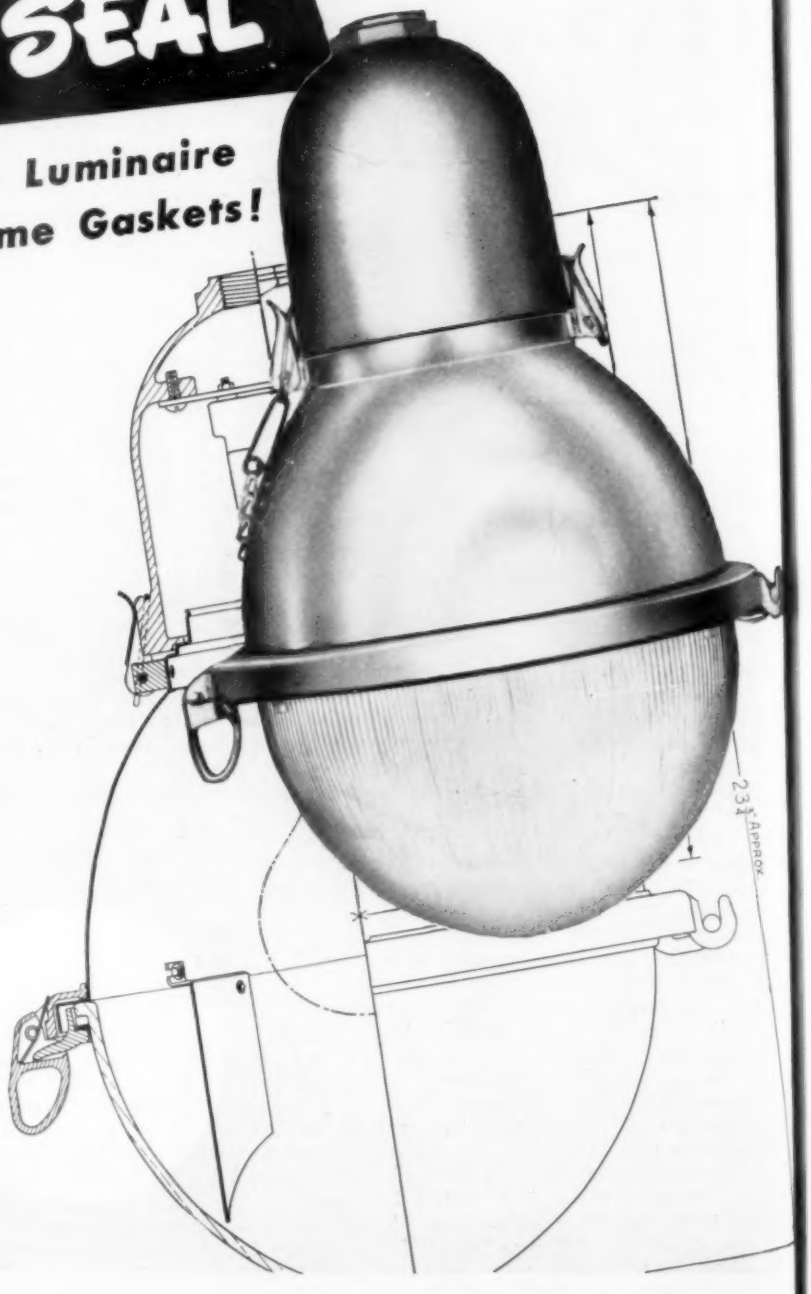
LA GRANGE'S street-lighting installation on Blackstone and Sunset Avenues is an example of what's new in street lighting. It's safe, comfortable lighting on the streets and sidewalks and not on porches and in windows.

Gone is the old practice of staggering poles 150 to 200 feet apart on both sides of the street, with resulting high installation and operating costs. You hardly notice the three poles in each

Announcing the New JOSLYN

DIRECT SEAL

Automatic Latching Luminaire Eliminates Troublesome Gaskets!



This new unique Joslyn Development provides a *direct-seal* between glassware and reflector without the use of gaskets which have proved to be troublesome and inadequate for street lighting applications. It results from our constant effort to provide Street Lighting Equipment of the highest efficiency and durability.

The following are some of the outstanding points of merit:

1. Circular wave type spring assures uniform high pressure direct-seal of glassware to reflector.
2. Latch and hinge attached to die cast aluminum ring which surrounds bottom flange of reflector thereby preventing distortion of reflector due to latching pressure.
3. The glassware holding ring of die cast aluminum and circular wave type spring are easily and quickly attached to the Holophane refractor or globe by applying pressure and rotating to the locking position.
4. The high pressure automatic latches draws the glassware ring upward, compresses the circular wave type spring and thus provides a tight direct-seal of uniform pressure between glassware and reflector.
5. This design permits easy relamping from the ground with a switch stick and lamp replacer.
6. This luminaire conforms to latest requirements as to interchangability with respect to reflector-glassware assembly, sockets and series receptacles.

Branch offices in principal cities

•

THE JOSLYN CO.
THE SOUTH EAST-JOSLYN CO.
SOUTHERN JOSLYN CO.
JOSLYN SOUTHWEST CO.
JOSLYN PACIFIC CO.

JOSLYN

Complete Pole Line Equipment

20 NORTH WACKER DRIVE, CHICAGO 6, ILL.

G. AN
PPLY C

60-foot block, located on but one side of the street, requiring a single cable. Attractive in daytime, too, the slim concrete poles, manufactured by the American Concrete Corporation, upsweep brackets, and teardrop pendant fixtures light the way to a new and better look in street lighting.

Those units at street intersections have 6,000-lumen lamps in G. E. luminaires equipped with Holophane four-way refractors. The units in the middle of blocks have 4,000-lumen lamps and Holophane two-way refractors.

An attractive folder by the Public Service Company of Northern Illinois presents this adventure in modern residential lighting in this Illinois town of 10,500. The essential meanings of adequate lighting are pointed out. It is shown how the refractor gathers the light and places it on the pavement with resulting comfort and economy. Having this refractor control, the larger, more efficient lamps, mounted higher above the roadway, can be used effectively. The result is that the taller poles, upsweep brackets, and pendant luminaires are appearing in residential areas as well as on traffic and business streets.

Twice the Light of Cleveland's Old White Way

By WALTER SKOVE, *Electrical Engineer, Division of Light & Power, Cleveland, Ohio*

OF CLEVELAND'S 18,500 street lights operated by the Division of Light and Power, 5,000 are obsolete white-way units of octagonal lantern design. These are being replaced, as indicated by the two photographs, shown here, taken on Superior Avenue.

The Cleveland Transit System found it necessary to reconstruct the overhead trolley line at about the same time, and a joint agreement was negotiated whereby the cost of new Union metal poles was shared by the two municipal agencies—the poles designed to support the trolley span wires and a lighting bracket on the same structure.

The old white-way installation on Superior Avenue consisted of eighty 10,000-lumen lamps at an average of 100-foot opposite spacing, the pavement width being 50 feet. The luminaire directed only 16% of the lamp output to the street pavement, giving an average illumination of 0.64 lumen per square foot.

The new installation with modern Line Material refractor-type Spherolite luminaires places 45% of the lamp output on the pavement. The luminaires are mounted with their light center 26 feet above the pavement and 5 feet out from the curb. Average spacing and size of lamp bulb are the same as for the old installation. The resulting average illumination is 1.8 lumens per square foot, an increase of 2.8 times over the old white way. The pavement is concrete between the streetcar tracks and light-colored macadam in the automobile-traffic lanes, and this highly reflective street surface utilizes the new lighting to the greatest degree. Such a pavement is a boon to the street-lighting engineer.

The objectives realized by modernization were the following: (1) Effective illumination well above the code requirements of the Illuminating Engineering Society, with no increase in power requirements; (2) The number of curbside structures was cut in half, materially improving the daytime appearance of the street; (3) Maintenance is greatly reduced because the new fixture has only one glass globe to clean, as compared with 16 panels in the old white-way lantern. Breakage from vandalism has been eliminated as a result of the increased mounting height.

The new luminaire and the old white-way lantern. The service truck is a composite unit: body by American Coach and Body Company, and a Gar Wood hoist on a White chassis.

Modern lighting on Superior Avenue in Cleveland.

Model P-10. Loads 3 to 4 yards a minute.

A NELSON HEAVY-DUTY is a *powerful* loader with *flexibility* and *ease-of-handling* that is real news in a machine so solidly built for rough steady going.

Working in yard or pit, scooping up windrows on highways, biting into firm materials in stripping and mining, a Nelson loader—for all its brawn—responds sensitively and surely to operator's touch.

Toothed spiral feeder that *picks before it shovels* . . . hydraulic hoist . . . Timken bearings . . . Twin Disc clutches . . . hardened bucket chains . . . four-speed transmission . . . quick, easy steering. With features like these, the big Nelson combines *stamina* and *ease-of-handling* to a new high degree. It's rugged without being musclebound. Use a Nelson® for quicker, more economical loading. Available with wheel or crawler mounting.

Before you buy, see a Nelson *perform*. Write for details and prices.

N. P. NELSON IRON WORKS, INC., CLIFTON, N. J.

See the Nelson "Heavy Duty" in space 3226 at the Road Show, Chicago, July 16-24

Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*

M. J. Jones
Wichita, Kansas

Carlton M. Roberts
Ft. Lauderdale, Fla.

Robert L. Price
Blairsville, Pa.

Philip L. White
Claremont, N. H.

Oscar Hesch
Newport, Ky.

E. C. Brandon
Kings Mountain, N. C.

James F. Shurtleff
Saugus, Mass.

Willard S. Conlon
La Junta, Colo.

Arthur E. J. Johnson
Cushing, Okla.

Lloyd K. Allen
Stonington, Maine

Allen Z. Torrey
Lancaster, N. H.

LeRoy Trafton
Sylvan Lake, Maine

W. T. Williamson
East Detroit, Mich.

LeRoy Bartlett
Montpelier, Vt.

Loyd E. Brady
Trinidad, Colo.

OLIVER A. BAKHAUS, a former oil company executive, has succeeded AUSTIN MOORE at Lexington, Ky.

JOHN M. BALDWIN, manager of Bluefield, Va., 1937-1941, has been appointed at Ocala, Fla.

ROBERT M. BOEHMER, former auditor, Brookline, Mass., is the first manager of Calais, Maine.

HARRY F. BRESSLER, Williamsport, Pa., has been appointed at Milford, Del.

L. R. BURROW, manager of Raymondville, Texas, 1946-1947; and of Bonham, Texas, since 1947, appointed at Kerrville, Tex.

FRED D. CHEATHAM, former city engineer, is manager of Springfield, Ore.

ELMER R. CROSS, manager of Excelsior Springs, Mo., 1946-1948, is manager of Lexington, Nebr.

(Continued on page 131)

CROUSE-HINDS

Elevated Runway and Taxi Light

with mounting assemblies to suit YOUR requirements

CAA Approved

Crouse-Hinds Type ERL Elevated Marker Light with Transformer Housing

Style A mounting is illustrated in the sectional view of Type ERL Elevated Marker Light shown above. It is for series circuits and consists of surface flange, anchor assembly, and isolating transformer.

Style B mounting is illustrated in the broken-away view at the left. It consists of a base plate and gasket to fit transformer base housings. It is used for converting existing flush marker light fixtures to ERL fixtures or for new installations at large airports or wherever a first-class wiring installation is desired. This mounting provides maximum accessibilty of the transformers and connections and will save considerable time in case of wiring difficulties. Style B mounting can be used on either series or multiple circuits.

Style C mounting is for multiple circuits and consists of a junction box with a hub cover on top, two squeeze connectors for through-feed cables at the bottom, and a 30-inch angle iron anchor. This mounting is especially desirable for taxi light installations or other situations where straight three-wire multiple circuits are desirable.

Crouse-Hinds Elevated Marker Light is built to meet Specification L-802 of the Civil Aeronautics Administration. It has a variable height up to 30 inches overall to meet local snow conditions. Either symmetric or asymmetric light distribution can be furnished. The globe is clear for runway lights, green for threshold lights, or blue for taxi lights. A breakable aluminum coupling is at the bottom of the mounting column. It is designed to withstand high winds and propeller blasts but will break readily upon impact.

This marker light is one of the hundreds of items in Crouse-Hinds complete line of airport lighting and control equipment. Write for full details on the equipment you require, whether it is a single unit or a complete airport installation.

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Municipal Purchasing News

A. Drace is the first manager of Titusville, Fla.

James McK. Dunlap has succeeded F. A. Dunn at Lexington, Va.

Casey Fannin, previously manager of Mollisonville, Texas, goes to Pittsburg, Texas.

Ben Freudenstein is manager at Brownsville, Texas.

Carl Froerer, former city engineer, has been appointed at Alameda, Calif.

E. E. Gamet, former superintendent of water and light at Canton, Mo., has been appointed at Slater, Mo.

M. O. Gardner, acting manager, has succeeded Walter H. Weber, retired, at Forest Grove, Ore

W. H. Graham, of St. Helena Island, S. C., will succeed Ed Nelson at Beaufort, S. C.

Albert Gray, Jr., graduate of the Public Management Course at the University of Maine, has been appointed first manager of Meredith, N. H.

E. D. Gray, previously city clerk, has succeeded E. H. Allen, Jr., at Nevada, Mo.

Hale A. Guss, manager of Northampton, Pa., 1932-1936, has been reappointed.

Donald S. Harding, former secretary of West Norriton Township, Pa., has been appointed manager of Oakmont, Pa.

O. P. Hart, research analyst for Miami, has succeeded Richard G. Danner at Miami, Fla.

E. G. Hubbert, superintendent and city clerk of Omah, Wash., has been appointed first manager of Sunnyside, Wash.

F. J. Jacocks, formerly with the City of Charlotte, N. C., is now manager of Rock Hill, S. C.

Virgil C. Knowles, former Superintendent of Recreation, Atchison, Kans., has been appointed manager of Holton, Kans.

Frank R. Limber, former city clerk, is now acting manager of Lynwood, Calif.

Wesley McClure, formerly of Public Administration Service, will succeed L. E. Olson at San Leandro, Calif.

William J. McIntyre has succeeded J. A. Fogarty at Newburgh, N. Y.

Don C. McMillan, manager of Ventura, 1934-1943; and of Alameda since 1943, has been appointed manager of Pasadena, Calif.

J. Keener Mizell has suceeded Wilbur E. Harkness at Leesburg, Fla.

Robert L. Morrison, manager of Knoxville, 1946-1947, has succeeded Earl C. Coalson at Bristol, Va.

C. E. Perkins, route development director for TWA, has been appointed manager of Winston-Salem, N. C.

G. S. Rattenbury, assistant city manager, has been appointed manager at Deland, Fla.

Guy M. Twombly is manager at Monroe, Maine.

Worth N. Yoder, works engineer at Tipton, Ind., has been appointed manager of Sturgis, Mich.

Clarence E. Ridley
Executive Director
International City Managers Association

City Purchasing Agent Joseph W. Nicholson has filed with the Institute several items of general interest to government buyers. They include detailed specifications covering the purchase and display of fireworks for the 1948 Fourth of July celebration in 17 parks of Milwaukee County and the Soldiers' Home at Wood, Wis., the experience questionnaire and financial statement which must be filed with the Central Board of Purchases of the City of Milwaukee, by vendors proposing to bid on city business, not less than five days prior to the time set for opening bids; specifications for fire hose used by the City of Milwaukee and the results of a bid opening of January 15, 1948, for fire hose in which ten vendors participated; specifications for register tape for the fire and police alarm system of the City of Milwaukee; the results of tests of sirens for squad cars and other emergency vehicles made by the engineer of the Central Board of Purchases. Mr. Nicholson also reports that the Police Radio Engineer is preparing specifications for radio tranmitters and receivers to operate on 40 and 150 megacycles.

The Division of Purchase and Property, State Department of Taxation and Finance, Trenton, N. J., is planning the installation of FM radio for its Forest Fire Service. Dr. Clarence W. Winchell, Supervisor of the Testing Section of the Division, has sent a questionnaire to 36 states having FM radio and is also desirous of hearing from any other public buyers who have recently installed such equipment.

Commissioner Ralph L. Dixon, of the Department of Public Accounts and Finance, City Hall, Winston-Salem, N. C., plans to purchase a 120-inch, 8-roller flatwork ironer; a 48 x 44 cascade washer, and a 36 x 30 tumbler.

Ward Alexander, City Purchasing Agent of Schenectady, N. Y., is revising his specifications on fire hose with a $2\frac{1}{2}$-inch internal diameter and a 400-pound test. He is interested in obtaining copies of specifications used by other governmental buyers. Please send any available specifications directly to him at the City Hall in Schenectady.

The White Motor Company, of Cleveland, Ohio, has received an order for 209 motor coaches from the Municipal Transit System of San Francisco at an estimated cost of a more than $3,300,000. The new buses are priced at about $16,000 each.

City Purchasing Agent Gentry W. Yates, Portland, Ore., has been authorized by ordinance to make purchases in excess of the charter limitation of $250 without advertisement for bids, because of the difficulty in obtaining supplies and equipment.

R. W. Langtry, secretary of the Commercial Testing and Engineering Company of Chicago, has some practical suggestions on procedures to be followed by governmental buyers in the purchase of coal. They deal with cost, quality, size, and performance under contract. Mr. Langtry has also prepared a specimen coal contract.

The NIGP 1948 Conference and Products Exhibit is to be held at the Hotel Bellevue-Stratford in Philadelphia on October 18-20, 1948.

A National Survey of salaries and responsibilities of public purchasing agents at all levels of government throughout the United States will be presented to the annual conference of NIGP. David Joseph, certified public accountant, 40 East 49th St., New York, who has been designated as special survey director, says there will be more than 1,500 questionnaires sent to public purchasing agencies throughout the country.

Mayor Martin Kennelly of Chicago has named members of the Board of Standardization in Chicago's new central purchasing department. City Purchasing Agent Leo A. Murray will act as chairman, and other members of the Board include Frederick J. Heaslip, director of purchases of Fairbanks, Morse and Company, Chicago; City Commissioner of Public Works Oscar E. Hewitt; Virgil E. Gunlock, Commissioner of Subways and Super Highways; Lloyd M. Johnson, Commissioner of Stores and Electricity; Warren Kelly, purchasing agent of the Santa Fe Railroad; and John Morrow, former vice-president in charge of sales for the International Harvester Company.

Albert H. Hall
Executive Director
National Institute of Governmental Purchasing, Inc., Washington 6, D. C.

Organizing Communities

(*Continued from page* 89)

But, you may ask, can we count on intelligent cooperation even if these preliminary steps are taken?

Dr. George Gallup, in an article which appeared in the *National Municipal Review* last year, states that there are 50,000,000 people in the United States who say they would be willing to serve, without pay, on committees made up of private persons, the purpose of which would be to study current problems in their own communities such as housing, health, juvenile delinquency, unemployment, and education. Seven out of every ten of the leading men in the nation want to help solve these problems in their communities.

Therein lies the solution. The public need not be likened to a great apathetic beast which refuses to concern itself with issues unless it is stirred by scandal or directly threatened by harmful legislation. Rather it should be considered as an intelligent body of men and women who have only to be adequately informed and allowed, even urged, to participate in the formulation of the rules under which our society is governed. The great mental resources of this country are as yet untapped, and in order to cultivate a coordinated community spirit, we have but to draw upon the abundant brain power.

LOOK WHAT TRAFFIC EXPERTS SAY ABOUT DUAL ADVANTAGES!

POLICE CHIEF

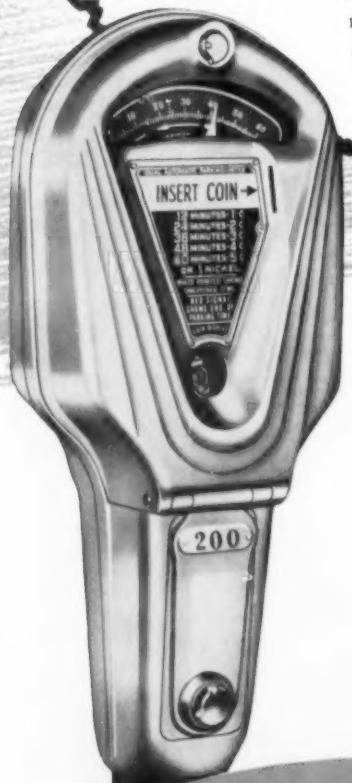
"In almost 8 years of operation our maintenance costs have been less than one cent per meter, per month. This, to me, is ample proof of the superior workmanship and quality of the Dual."

TRAFFIC DIRECTOR

"Dual is 'tops' . . . makes enforcement very easy."

TRAFFIC ENGINEER

"We like Duals . . . we like Dual *service.*"



THESE comments are typical of Dual's "success stories". In hundreds of cities throughout the United States and Canada, Dual Automatic Parking Meters are making pace-setting records.

It's easy to see why. Duals are engineered like fine timepieces. They're accurate, precision-built instruments. They're weather-proof and tamper-proof. They operate automatically—no levers to cause servicing problems. They're ruggedly built for long, economical service. *And the meter movement—the most vital part of any meter—is made by a manufacturer of world-famous clocks.*

Before you install *any* meter, find out about Dual's many advantages. Learn about the Specialized Service that is a *plus* value for every Dual-equipped city. Write for bulletin, or ask our engineers for helpful, expert survey service.

DUAL
The ORIGINAL Parking Meter

THE DUAL PARKING METER COMPANY
A subsidiary of The Union Metal Manufacturing Company
Milford Building • Canton 2, Ohio

...YOUR BEST ANSWER TO EVERY PARKING PROBLEM

Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

July 14-16—Baton Rouge, La.
ANNUAL SHORT COURSE FOR SUPERINTENDENTS AND OPERATORS OF WATER AND SEWAGE WORKS (Geology Building). Dir., J. H. O'Neill, Louisiana State Department of Health, Civil Courts Bldg., P. O. Box 630, New Orleans 7, La.

July 16-24—Chicago, Ill.
AMERICAN ROAD BUILDERS ASSOCIATION. Road Show. Soldier Field. Engr. Dir., Charles M. Upham, 1319 F St., NW., Washington 4, D. C.

***July 26-28—Philadelphia, Pa.**
PENNSYLVANIA CHIEFS OF POLICE ASSOCIATION. Annual Meeting (Hotel Benjamin Franklin). Sec., F. B. Titus, 80 Price Ave., Lansdowne, Pa.

July 27-29—White Plains, N. Y.
NEW YORK STATE ASSOCIATION OF CHIEFS OF POLICE (Hotel Roger Smith). Sec., R. W. Morris, 215 State Tower Building, Syracuse.

Aug. 23-25—Chattanooga, Tenn.
AMERICAN WATER WORKS ASSOCIATION—Kentucky-Tennessee Section, and KENTUCKY-TENNESSEE INDUSTRIAL WASTES AND SEWAGE ASOCIATION. Joint Meeting (Hotel Patton). Sec., R. P. Farrell, 420 Sixth Ave., No., Nashville, Tenn.

Aug. 23-25—State College, Pa.
PENNSYLVANIA WATER WORKS OPERATORS ASSOCIATION. Annual Meeting (Pennsylvania State College). Sec.-Treas., Ivan M. Glace, 1001 N. Front St., Harrisburg, Pa.

Aug. 23-27—Milwaukee, Wis.
NATIONAL SHADE TREE CONFERENCE. Annual Convention (Hotel Schroeder). Sec.-Treas., L. C. Chadwick, Dept. of Horticulture, Ohio State University, Columbus 10, Ohio.

Aug. 25-27—State College, Pa.
PENNSYLVANIA SEWAGE AND INDUSTRIAL WORKS ASSOCIATION. Annual Meeting (Electrical Bldg., Pennsylvania State College). Sec.-Treas., Bernard S. Bush, Kirby Health Center, Wilkes-Barre, Pa.

Aug. 26-28—Logan, Utah
UTAH MUNICIPAL LEAGUE. Annual Meeting (Hotel Eccles). Sec.-Treas., Lyla Ray, Newhouse Hotel, Salt Lake City 1, Utah.

Sept. 1-2—Winnipeg, Manitoba
AMERICAN WATER WORKS ASSOCIATION — Minnesota Section. Annual Conference (Hotel Royal Alexandra). Sec.-Treas., R. M. Finch, 416 Flour Exchange, Minneapolis 15, Minn.

Sept. 8-11—Chicago, Ill.
GOVERNMENT RESEARCH ASSOCIATION. Annual Convention (Hotel Congress). Sec., G. G. Tegnell, 30 Rockefeller Plaza, New York 20, N. Y.

Sept. 9-11—Saranac, N. Y.
COUNTY OFFICERS' ASSOCIATION, State of New York. Annual Meeting (Saranac Inn). Exec. Sec., Donald C. Scribner, County Bldg., Johnstown, N. Y.

Sept. 10-11—Grand Forks, N. D.
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Convention. Exec. Sec., Myron H. Atkinson, P. O. Box 358, Bismarck, N. D.

Sept. 12-16—Mackinac Island, Mich.
INTERNATIONAL CITY MANAGERS ASSOCIATION. Annual Convention (Hotel Grand). Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago.

Sept. 14-15—Des Moines, Iowa
IOWA SEWAGE WORKS ASSOCIATION. Annual Convention (Hotel Kirkwood). Sec.-Treas., Leo Holtkamp, P. O. Box 310, Webster City, Iowa.

Sept. 14-17—New York, N. Y.
NEW ENGLAND WATER WORKS ASSOCIATION (Hotel Pennsylvania)). Sec., Joseph C. Knox. 204 Tremont Bldg, Boston, Mass.

Sept. 15-17—Pittsburgh, Pa.
PENNSYLVANIA STATE ASSOCIATION OF COUNTY COMMISSIONERS. Annual Convention (Hotel William Penn). Sec.-Treas., Herbert S. Bolger, Court House, Hollidaysburg, Pa.

Sept. 16-17—Cheyenne, Wyo.
AMERICAN WATER WORKS ASSOCIATION—Rocky Mountain Section. Annual Convention (Hotel Plains). Sec.-Treas., O. J. Ripple, 710 Colorado Bldg., Denver 2, Colo.

***Sept. 19-24—Salt Lake City, Utah**
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Meeting. Exec. Sec., Hall H. Hale, 1220 National Press Building, Washington, D. C.

Sept. 20-22—Wichita, Kans.
LEAGUE OF KANSAS MUNICIPALITIES. Annual Meeting (Hotel Broadview). Exec. Dir., John G. Stutz, 512 Capitol Federal Bldg., Topeka, Kans.

Sept. 20-24—Boston, Mass.
ILLUMINATING ENGINEERING SOCIETY. Annual Convention (Hotel Statler). Sec., A. D. Hinckley, IES National Technical Conference, 51 Madison Ave., New York 10, N. Y.

Sept. 21-22—Lafayette, Ind.
INDUSTRIAL WASTE CONFERENCE. Purdue University (Hotels Fowler and Lahr, Purdue Union Club). Chairman, Don E. Bloodgood, Civil Engineering Bldg., Purdue University, Lafayette, Ind.

Sept. 22-24—Flint, Mich.
AMERICAN WATER WORKS ASSOCIATION—Michigan Section. Annual Convention (Hotel Durant). Sec.-Treas., Raymond J. Faust, Chief, Division of Water Supply, Dept. of Health, Lansing 4.

***Sept. 22-24—Atlanta, Ga.**
GEORGIA WATER AND SEWAGE ASSOCIATION. Annual Meeting (Georgia School of Technology). Sec.-Treas., Van P. Enloe, Rt. No. 7, Box 372, Atlanta, Ga.

Sept. 22-24—Reading, Pa.
LEAGUE OF CITIES OF THE THIRD CLASS IN PENNSYLVANIA. Annual Convention (Hotel Abraham Lincoln). Pres., Walter E. Greenwood, Room 302, City Hall, Harrisburg, Pa.

***Sept. 23-24—Minot, N. D.**
NORTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Annual Convention (Hotel Clarence Parker). Exec. Sec., Jerome H. Svore, Dir., Div. of Sanitary Engineering, State Dept. of Health, Bismarck, N. D.

Sept. 26-28—Old Point Comfort, Va.
LEAGUE OF VIRGINIA MUNICIPALITIES. Annual Convention (Hotel Chamberlin). Exec. Sec., H. J. Baumes, 902 Travelers Bldg., Richmond.

Sept. 26-30—Atlantic City, N. J.
AMERICAN TRANSIT ASSOCIATION. Annual Convention (Hotel Traymore). Gen. Sec., A. W. Baker, 292 Madison Ave., New York 17, N. Y.

Sept. 26-Oct. 1—Omaha, Nebr.
NATIONAL RECREATION CONGRESS. Annual Convention (Hotel Fontenelle). Sec., T. E. Rivers, National Recreation Association, 315 Fourth Ave., New York, N. Y.

Sept. 26-30—Milwaukee, Wis.
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Convention (Hotel Schroeder). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago, Ill.

Sept. 29-30—Clarksburg, W. Va.
AMERICAN WATER WORKS ASSOCIATION—West Virginia Section. Annual Convention (Hotel Stonewall Jackson). Sec., John B. Harrington, State Department of Health, Charleston 5, W. Va.

Sept. 30-Oct. 1—Sioux Falls, S. D.
SOUTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Annual Convention (Hotel Carpenter). Sec., W. W. Towne, Dir., Division of Sanitary Engineering, State Board of Health, Pierre, S. D.

Oct. 3-6—Boston, Mass.
AMERICAN INSTITUTE OF PARK EXECUTIVES, Fiftieth Anniversary. Annual Convention. Exec. Sec., David Hovey, Box 422, Rockford, Ill.

***Oct. 4-6—El Paso, Texas**
LEAGUE OF TEXAS MUNICIPALITIES. Annual Convention. Exec. Dir., E. E. McAdams, 2220 Guadalupe St., Austin 21, Texas.

***Oct. 4-7—Denver, Colo.**
NATIONAL TAX ASSOCIATION. National Conference. Sec., Raymond E. Manning, Library of Congress, Washington, D. C.

Oct. 4-7—Buffalo, N. Y.
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Meeting (Hotel Statler). Sec., Irvin Shulsinger, International Municipal Signal Association, Inc., 11 W. 42d St., New York 18.

Oct. 4-7—Ottawa, Canada
CIVIL SERVICE ASSEMBLY. Annual Conference on Public Personnel Administration. (Hotel Chateau Laurier, Hotel Lord Elgin). Dir., James M. Mitchell, 1313 E. 60th St., Chicago, Ill.

Oct. 5-6—Fort Dodge, Iowa
AMERICAN WATER WORKS ASSOCIATION—Iowa Section. Annual Convention (Hotel Wahkonsa). Exec. Sec., H. V. Pedersen, Supt. and Mgr., City Water Works, Marshalltown, Iowa.

Oct. 6-9—St. Louis, Mo.
ASSOCIATION OF SCHOOL BUSINESS OFFICIALS. Annual Convention (Hotel Jefferson). Sec.-Treas., H. W. Anderson, 306 E. Lovell St., Kalamazoo, Mich.

Oct. 7-8—Mansfield, Ohio
AMERICAN WATER WORKS ASSOCIATION—Ohio Section. Annual Convention (Hotel Mansfield-Leland). Sec.-Treas., F. P. Fischer, Sales Engineer, Wallace & Tiernan, Cleveland, Ohio.

Oct. 10-13—Galveston, Texas
AMERICAN WATER WORKS ASSOCIATION—Southwest Section. Annual Convention (Hotel Buccaneer). Sec.-Treas., L. A. Jackson, Mgr. Little Rock Water Works, Little Rock, Ark.

Oct. 10-13—Philadelphia, Pa.
NATIONAL ASSOCIATION OF COMMERCIAL ORGANIZATION SECRETARIES. Annual Convention (Hotel Benjamin Franklin). Exec. Sec., Miss Elizabeth Glenn, 1615 H St., NW., Washington 6, D. C.

Oct. 10-14—New York, N. Y.
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Conference (Hotel Pennsylvania). Exec. Sec., Edward J. Kelly, 918 F St., NW., Washington, D. C.

Oct. 11-13—Springfield, Ill.
ILLINOIS MUNICIPAL LEAGUE. Annual Convention (Hotel Leland). Exec. Dir., A. L. Sargent, I.M.L., 537 South Fourth St., Springfield, Ill.

Oct. 11-13—New York, N. Y.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Meeting (Hotel New Yorker). Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

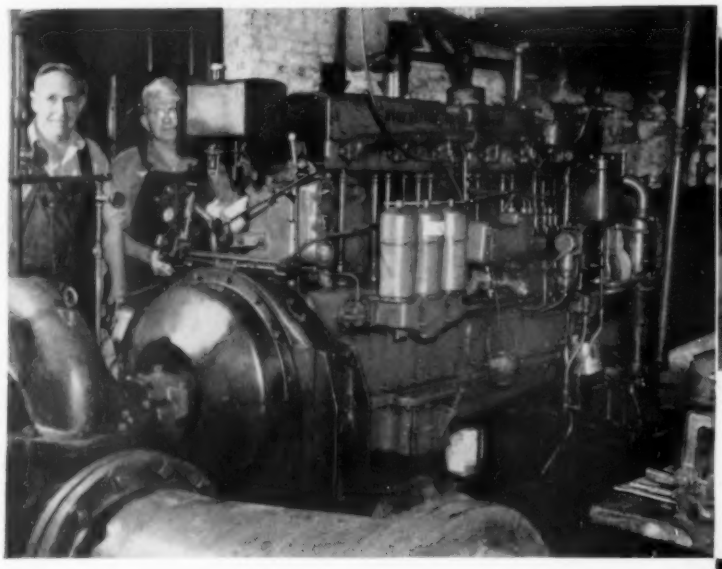
Oct. 11-13—Philadelphia, Pa.
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Hotel Warwick). Exec. Sec., Robert S. Holmes, 212 Strathcona Hall, New Haven 11, Conn.

Oct. 13-15—Montgomery, Ala.
AMERICAN WATER WORKS ASSOCIATION—Alabama-Mississippi Section. Annual Meeting (Hotel Whitley). Sec., John L. Snow, First National Bank Bldg., Montgomery, Ala.

Oct. 13-16—Seattle, Wash.
NATIONAL ASSOCIATION OF HOUSING OFFICIALS. Annual Meeting (Hotel Olympic). N.A.H.O., 1313 E. 60th St., Chicago 37, Ill.

(Continued on Page 135)

Here's steady-going pump power



• At Taunton, Mass., city water works, this "Caterpillar" Diesel D13000 Engine operates on a 24-hour schedule, 300 days a year.

THE city of Taunton, Mass., grew faster than its normal water supply during the war. To provide adequate water, a "Caterpillar" Diesel D13000 Engine was installed, pumping from Asawompsett Lake into Elders Pond, the former source of supply.

Directly connected to a DeLaverne centrifugal pump, this husky power plant keeps running right around the clock, with a 3-hour shutdown every 10 days to change the oil. It has averaged 25 full days per month, and when these pictures were taken, more than a year ago, the hour meter on the engine showed 9014 work hours.

Chief Engineer Amos S. McMullen says:

"We've worked this machine for all it's worth. We only shut down for oil changes. It is doing an important job well."

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES • TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

Conventions

(*Continued from Page* 133)

Oct. 14-16—Toronto, Ontario
COMMUNITY PLANNING ASSOCIATION OF CANADA. Ontario Regional Conference and National Annual Meeting. Exec. Dir., Alan H. Armstrong, 56 Lyon St., Ottawa, Canada.

Oct. 15-17—Phoenix, Ariz.
AMERICAN WATER WORKS ASSOCIATION—Arizona Section. Annual Convention (Hotel Westward Ho). Sec., Mrs. Helen Rotthaus, San. Eng. Div., State Department of Health, Phoenix, Ariz.

***Oct. 17-19—Charlotte, N. C.**
NORTH CAROLINA LEAGUE OF MUNICIPALITIES. Annual Conference (Hotel Charlotte). Exec. Sec., Mrs. Davetta L. Steed, 1009 Raleigh Building, Raleigh, N. C.

Oct. 17-20—Boston, Mass.
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Conference (Hotel Copley Plaza). Exec. Dir., Donald F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

Oct. 18-20—Philadelphia, Pa.
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference (Hotel Bellevue-Stratford). Exec. Dir., Albert H. Hall, 730 Jackson Place, NW., Washington 6, D. C.

Oct. 18-21—Detroit, Mich.
FEDERATION OF SEWAGE WORKS ASSOCIATIONS (Hotel Statler). Sec.-Treas., W. H. Wisely, 325 Illinois Bldg., Champaign, Ill.

Oct. 18-22—Chicago, Ill.
NATIONAL SAFETY COUNCIL. Congress and Exposition (Stevens-Congress-Palmer House-Sherman). Pres.-Vice-Pres., Ned H. Dearborn, 20 North Wacker Drive, Chicago 6, Ill.

Oct. 20-22—Philadelphia, Pa.
AMERICAN WATER WORKS ASSOCIATION—Four States and Western Pennsylvania Sections. Annual Convention (Hotel Sheridan). Sec. (Four States), W. A. Welch, Industrial Chemical Sales Div., W. Va. Pulp and Paper Co., 748 Public Ledger Bldg., Philadelphia, Pa. Sec. (Western Pennsylvania), E. P. Johnson, 418 Flannery Bldg., Sta. 13, Pittsburgh, Pa.

Oct. 24-26—Jefferson City, Mo.
AMERICAN WATER WORKS ASSOCIATION—Missouri Section. Annual Convention (Hotel Governor). Sec.-Treas., Warren A. Kramer, Div. of Health, State Office Bldg., Jefferson City, Mo.

Oct. 25-26—Richmond, Va.
AMERICAN WATER WORKS ASSOCIATION—Virginia Section. Annual Convention (Hotel John Marshall). Sec.-Treas., W. H. Shewbridge, State Office Bldg., Richmond 22, Va.

Oct. 27-29—Riverside, Calif.
AMERICAN WATER WORKS ASSOCIATION—California Section. Annual Meeting. Sec., H. C. Medbury, Water Dept., 425 Mason St., San Francisco 2, Calif.

Oct. 28-29—LaCrosse, Wis.
AMERICAN WATER WORKS ASSOCIATION—Wisconsin Section. Annual Convention (Hotel Stoddard). Sec., Leon A. Smith, Supt. Water Works, City Hall, Madison, Wis.

Nov. 4-6—Atlantic City, N. J.
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Fall Meeting (Hotel Madison). Sec., C. B. Tygert, Box 178, Newark 1, N. J.

Nov. 8-10—Asheville, N. C.
AMERICAN WATER WORKS ASSOCIATION—North Carolina Section, and North Carolina Sewage Works Association. Annual Convention (Hotel George Vanderbilt). Sec.-Treas., George S. Moore, P. O. Box 125, Albermarle, N. C.

Nov. 8-12—Boston, Mass.
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Meeting. Exec. Sec., Dr. Reginald M. Atwater, 1790 Broadway, New York 19, N. Y.

Nov. 9-12—Miami, Fla.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Convention (Hotel Everglades). Sec.-Treas., Chief Daniel B. Tierney, 8 Robbins Road, Arlington, Mass.

Nov. 18-20—Panama City, Fla.
AMERICAN WATER WORKS ASSOCIATION—Florida Section. Annual Convention (Hotel Dixie Sherman). Sec., S. K. Keller, Box 510, Clearwater, Fla.

***Nov. 22-24—Boston, Mass.**
NATIONAL MUNICIPAL LEAGUE. National Conference (Hotel Statler). Exec. Sec., Alfred Willoughby, 299 Broadway, New York 7, N. Y.

***Dec. 2-4—Washington, D. C.**
NATIONAL INSTITUTE OF MUNICIPAL OFFICERS. Annual Conference. Exec. Dir., Charles S. Rhyne, 730 Jackson Place, NW., Washington, D. C.

***Dec. 6-10—Washington, D. C.**
HIGHWAY RESEARCH BOARD. Annual Meeting (Building of National Academy of Sciences—National Research Council). Dir., Roy W. Crum, 2101 Constitution Ave., Washington 25.

***Dec. 8-11—Chicago, Ill.**
AMERICAN PUBLIC WELFARE ASSOCIATION. Annual Meeting (Hotel Edgewater Beach). Dir., Howard L. Russell, 1313 E. 60th St., Chicago 37, Ill.

Dec. 13-15—Washington, D. C.
AMERICAN MUNICIPAL ASSOCIATION. Annual Convention (Hotel Statler). Exec. Dir., Earl D. Mallery, 522-526 Transportation Bldg., 17th and H Sts., NW., Washington, D. C.

The Municipal Bond Market

By FREDERICK L. BIRD
Director of Municipal Research
Dun & Bradstreet, Inc.

THE volume of state and municipal borrowing in 1948 gives promise of exceeding the new high mark, set last year, of $2,300,000,000. The most widespread borrowing activity continues to be in the West and Southwest, where the rapid growth of population has given special urgency to school and general-improvement programs.

Over the next few months a number of large revenue-bond issues for highways, bridges, housing, electric plants, airports and other revenue-producing projects are expected to swell the volume of public borrowing. Included among the proposed issues are $70,000,000 for a 100-mile extension of the Pennsylvania Turnpike, $40,000,000 for a bridge over the Delaware River south of Wilmington, a large issue by the New York City Housing Authority, $40,000,000 by the Los Angeles Department of Water and Power for a new hydro electric project, and an issue of airport bonds by the Port of New York Authority to initiate its huge program of air-terminal development for the New York metropolitan area.

Through May, the market absorbed with surprising equanimity the heavy and continued flood of new borrowing. *The Bond Buyer's* index of yield of twenty 20-year municipals continued the decline begun earlier in the year, and by the end of May was down to 2.23%, but in June there were signs that the supply, at least at previously prevailing prices, was beginning to exceed the demand. The yield index held at 2.23% through June 10, but the inventory of unsold bonds in dealers' hands had jumped to over $100,000,000 by June 15, according to figures compiled by the *Blue List*, compared with $80,000,000 a month earlier.

Trend Toward Gradually Higher Interest Rates

Aside from the possibility that continued heavy borrowing will edge up interest rates, the prevailing trend is toward gradually higher interest rates generally. This is specially evident at present in short-term bank loans. When the Federal Reserve Board, on June 1, raised the reserve requirements of banks in New York and Chicago from 22% to 24%, several New York banks raised interest rates on some classes of commercial loans. What effect this will have on the cost of long-term corporate and municipal financing is not clear as yet; but it has a rather direct relation to the serial bonds used preponderantly by municipalities, since the interest rates on long-term municipals have been influenced strongly by the very low rates at which the early maturities could be marketed.

Not reflected in average bond-yield figures is the rather wide range in the interest rates which municipalities are able to secure on their bonds. This range is due in part, of course, to the varying periods over which bond issues are scheduled to mature; but differences in the quality of the credit are an influential factor even during the present general prosperity. Since the dealer buys an issue of serial bonds at an over-all price and then retails them to his clients at prices which vary with the maturity, his offering prices provide the best means of disclosing the variations referred to. The accompanying table illustrates the situation by showing, for 10 representative bond issues sold recently, the approximate yield basis on which 5-year, 10-year and 20-year maturities were offered by the underwriters.

	5-Yr.	*10-Yr.*	*20-Yr.*
Lexington, Mass.	1.15%	1.40%	1.70%
Harford County, Md.	1.10	1.60	1.90
Dallas, Texas	1.25	1.70	2.15
Providence, R. I.	1.35	1.80	2.15
New Orleans, La.	1.30	1.80	2.25
Seattle, Wash.	1.40	1.90	2.25
Galveston Co., Texas	1.40	1.90	2.40
Chattanooga, Tenn.	1.60	2.30	2.70
Asheboro Sch. Dis., N. C.	1.80	2.20	2.75
Corpus Christie, Texas:			
General Oblig.		2.90	3.35
Water Revenue	2.00	2.65	3.05

Manager Needed in Richmond

Richmond, Va., a city whose new council-manager form of government goes into effect September 7, 1948, is in the market for a city manager. No salary has been established, as this will be a matter of negotiation between the city manager and the council. Persons interested should apply to William T. Wells, City Clerk, 309 City Hall, Richmond.

Announcing...

..the *NEW* and IMPROVED

MARK-TIME

Rhodemaster

The improved Rhodemaster is available for delivery now. The modernly designed cast casing has not been changed because it is still the best looking sight on both sides of any street . . . but look at these improvements that have been made:

Dynamically balanced, COIN CARRIER reduces wear and lowers meter maintenance cost.

The "Shutter-Stop" COIN SLOT and spring action COIN SHUTE eliminates the possibility of the second coin being inserted before the first has been cleared.

Positive-action-drive TIMING MECHANISM assures longer meter life and a more dependable operation by Rhodemaster than with any other meter.

The Really Big New Feature.

No tools of any kind are required, your thumb nail does the job to assemble or disassemble the meter . . . replacement of the magic link safety fuse can be made on the spot, in less time. A time saving feature available only with Rhodemaster.

The Rhodemaster still retains all of the features that have made it the logical and most reasonable choice of cities that want the finest in metered parking: All-weather coin slot, Sealed coin box collection system, Vandalism protection, Low maintenance cost, Dependable Mark-Time timing unit.

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TO BE POSITIVE THAT YOUR CITY IS RECEIVING THE FINEST IN PARKING METERS, WRITE FOR SPECIFICATIONS ON THE NEW IMPROVED ***MARK-TIME***

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Municipal and Civic Publications

Planning from the Family's Viewpoint

PLANNING THE COMMUNITY FOR FAMILY LIVING—*By Harold S. Buttenheim, Editor,* THE AMERICAN CITY, *and Robert C. Weinberg, Architect and City Planner. A paper prepared for the National Conference on Family Life, held in Washington, D. C., May 6-8, 1948. Mimeo.* 19 *pp.* 25 *cents per copy from* THE AMERICAN CITY.

This paper makes meaningful to the average person such concepts and terminology as zoning, the master plan, police power, the neighborhood unit idea, garden cities, decentralization, urban redevelopment, renovation, and conservation. It attempts to identify some of the things that families want and do not want in their communities. By explaining in simple terms what planning is all about, it shows how these family needs and preferences can be satisfied through the planning function. In the concluding section, "Where Is the Money Coming From?", the paper urges change in local systems of taxation—reducing tax rates on buildings and increasing such rates on land, as an aid to the improvement of urban conditions for family life.

Adult Education and Community Councils

COMMUNITY EDUCATION IN ACTION, A REPORT ON COMMUNITY ORGANIZATION AND ADULT EDUCATION—*American Association for Adult Education,* 525 *W.* 120*th St., New York* 27, *N. Y.* 1948. 58 *pp.* 50 *cents.*

This report identifies the various approaches to the community organization movement, listing successful examples of each type of group. It discusses the educational processes involved in community organization, as well as the specific contributions that adult education can make to the movement. It also points out that one quick way for an "educator" to get himself out of that isolation which has often made him feel sterile is to get into contact with community organization. The report concludes by asking for teamwork between educators and community organizers, declaring that neither field is new but that both are servants of the American resolve to make living better for everybody.

Tax Systems

TAX SYSTEMS, ELEVENTH EDITION—*By Commerce Clearing House, Inc., Tax Research Department,* 214 *N. Michigan Ave., Chicago* 1, *Ill.* 1948. 382 *pp.* $15.00.

The eleventh edition of this most useful yearbook on tax systems contains legislative and statistical information on the tax structure and tax statistics of the Federal Government and every state, arranged for ready comparison. The volume's contents, which are up to date as of January 1, 1948, also contain pertinent data on a number of foreign jurisdictions.

The tax charts and tables are well indexed and organized and easy to read. The entire project, originally begun by the New York State Tax Commission, with the aid of a number of tax experts throughout the country, is of continuing value in helping to call attention to the confusing and interwoven pattern of federal-state-local tax policies.

Planning for Mobility

TRAFFIC AND HOUSING—*By Leslie Williams, Traffic and Planning Engineer,* 292 *Madison Ave., New York* 17, *N. Y.* 1948. 7 *pp. Mimeo. Apply to author.*

An interesting statement of some of the problems and principles involved in the planning of trafficways, considering current decentralization trends.

Aircraft for Mosquito Control

THE USE OF AIRCRAFT IN THE CONTROL OF MOSQUITOES—*American Mosquito Control Association. Available from Thomas D. Mulhern, Secretary-Treasurer, AMCA, New Brunswick, N. J. AMCA Bulletin No.* 1. *March* 1948. 74 *pp. Subscription to* Mosquito News, *quarterly journal,* $3.00 *per year. Single copies,* 75 *cents.*

This brochure on the use of aircraft in the control of mosquitoes is the result of a conference sponsored by the American Mosquito Control Association, held in Asheville, N. C., in 1947. The importance of the subject is shown by the fact that last year more than a million acres were treated with insecticides from aircraft for the control of mosquitoes.

The comprehensive report presents practical information on when, where, and how aircraft properly may be used to distribute mosquito insecticides, chiefly DDT, and on appropriate methods for appraising results. Ample photos and illustrations help make the publication a practical manual for those concerned with insect control.

Report on Central Heating

DISTRICT HEATING—*International Union of Local Authorities, Brussels* 5, *Rue de la Regence, Document* 285, *Vol.* 30, 1948. 39 *pp.*

This report sets forth some general considerations regarding the problem of district or central heating. It outlines advantages from the economic, social, and public health viewpoints; contains accounts of experience in the field, and also reports on the proceedings of the round table held at the 1947 Paris Conference of the International Union of Local Authorities at which technicians and administrators from several countries, discussed various aspects of the problem. The report points out that a constantly growing number of local authorities or municipalities will be tempted to add heating distribution to their public services, and that it is important for them to have some basic facts about the problem.

New Town in Hawaii

YOU AND YOUR HOME—*Hawaiian Economic Foundation,* 1015 *Bishop Street, Honolulu, Hawaii.* 1948. *Illus.* 16 *pp.*

A plan for a new modern city to center on Kahului Harbor, in the Island of Maui, with a three-square-mile area and 4,000 homes, is described in this booklet. Work will get under way this year, and about 200 homes for sale or rent will be constructed during 1948-49. The present program, outlined by Harland Bartholomew and Associates, of St. Louis, has been adopted by the Hawaiian Commercial Sugar Company and the Kahului Railroad Company. These companies will develop the project gradually over a period of years.

Detroit Organization Charts

ORGANIZATION CHARTS, CITY OF DETROIT—*Prepared by the Civil Service Commission. Available from office of City Clerk, City Hall, Detroit* 26, *Mich. January* 1948. 74 *pp.* $1.25

This document shows in chart form all operations carried on by the City of Detroit, the personnel engaged in each activity, the organizational relationships between the various activities, and the legal authorization for the activities listed. The information is clearly set forth, can be easily assimilated, and the publication could well serve as a model for chart preparers in other cities.

Segregation in the North

THE NEGRO GHETTO—*By Robert C. Weaver. Harcourt Brace and Company,* 383 *Madison Ave., New York* 17, *N. Y.* 1948. 404 *pp.* $3.75.

This timely and objective study of residential segregation in the North devotes considerable space to specific measures and techniques proposed to meet the problem of housing colored Americans decently in a democracy. It describes the mechanisms of segregation and the consequences: the high cost to the community as a whole in terms of taxes, bad housing, unnecessary vacancies in areas undergoing a change in racial occupancy, negation of the practice of free competition, and the creation of vested interests in both the white and Negro community for the perpetuation of racial segregation.

The book concentrates on the North because of the extreme housing shortage for minorities, a situation which will force the North to deal with segregation, and also because it is the region where "necessity, tradition, and law suggest the greater possibility for immediate results." It also focuses attention on the economic motivation and institutions that must be recognized and understood if the race problem is to be considered as more than a moral issue. Municipal officials and planners will find many sections of the book of interest and value, particularly those on urban redevelopment, which the author considers as "a threat or an opportunity," and the chapters on local public-housing policies.

St. Louis Region Guide Plan

GUIDE PLAN, MISSOURI-ILLINOIS METROPOLITAN AREA—*Prepared for the Metropolitan Plan Association, Inc.,* 915 *Olive St., St. Louis, Mo. March* 1948. *Illus.* 50 *pp.* $2.00.

The chief purpose of this preliminary guide plan is to provide a starting point and basis of information for the Missouri-Illinois Bi-State Development Commission, recently established by the action of legislatures of both states. According to the foreword by W. Philip Shatts, Executive Vice-President of the Metropolitan Plan Association, the guide plan emphasizes the proper relationship of major metropolitan-wide development problems to each other and to the development of the area as a whole.

This guide plan will also encourage the hundred or more communities of the area to study their improvement needs, and furnishes them with a tentative pattern for comprehensive metropolitan improvements into which the local communities may fit their plans. It also supplies facts to business concerns about the future development of the area which can be of service to them in planning the alteration and extension of their operations.

Public Finance Index

TAX INSTITUTE BOOKSHELF—*Tax Institute, Inc.,* 150 *Nassau St., New York* 7, *N. Y. Numbers* 16-17, *December* 1947-*March* 1948. 54 *pp.*

This is a valuable guide to available current material on various aspects of public and municipal finance. It appears quarterly and is compiled under the direction of the Tax Institute's Bookshelf Committee, of which James W. Martin is chairman. This issue contains a directory of national and international public finance periodicals and a directory of tax services, including state and local tax services, as well as the usual comprehensive indexed listings of published material in the field. Items are reported which appeared during the last two quarters of 1947.

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SPRING After "Caterpillar" Motor Graders clean ditches, the Athey Force-Feed Loader is the fastest machine for loading windrowed material.

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Technical Services Available

GUIDE TO TECHNICAL SERVICES AVAILABLE TO STATE AND LOCAL AGENCIES IN TENNESSEE—*The Bureau of Public Administration, University of Tennessee, Knoxville, Tenn. Publication No.* 185. *April* 1948. 168 *pp.*

One of the products of the southern regional co-operative program among the Universities of Alabama, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia, along with the Tennessee Valley Authority, is an excellent handbook to acquaint the state and local officials of Tennessee with those governmental and non-profit private agencies that offer technical information and assistance for promoting sound governmental practices.

The agencies are categorized into 30 groups, the major subdivisions being governmental organization, budgets and accounts, education, public health, public welfare, natural resources, planning, zoning, and housing, and streets and highways. Each source is summarized as to type, major activities, services provided on request, charges for services and staff, and sources of financial support.

Not only is the guide valuable for Tennessee officials, but, because of its comprehensive listing of national sources of information, it should be useful to officials of all states.

Bettering Housing Design

BETTER HOUSING FOR THE FAMILY—*Prepared and edited by Beatrice S. Friedman for the Housing Committee of the Women's City Club of New York, Inc., Hotel New Weston, New York* 22, *N. Y.* 1948. 64 *pp.* $1.00.

This publication is the result of interviews with 458 families in four various-sized public-housing projects of New York City. The opinions of housewives are summarized regarding the adequacy and house-planning of their apartment quarters. The report, which should be of considerable practicable value to architects, city planners, and housing authorities, is essentially a follow-up to a study called *Housing for the Family*, originally published by the Women's City Club in 1936 and based on questionnaires and interviews with nearly 1500 housewives living in tenements and slum neighborhoods.

Among the important community living essentials listed by the housewives in 1948 are child-care centers, playgrounds for children, teen-age and adult activities, shopping facilities for inexpensive merchandise, public transportation, schools, clinics, and medical facilities. Listed as essential housekeeping requirements are adequate drying facilities, outdoor drying space, independent access to all rooms, doors on closets, and adequate storage for food.

County Industrial Surveys

REPORTING ON THE FOUR COUNTY INDUSTRIAL INVENTORY—*Allegheny Conference on Community Development*, 508 *Magee Bldg., Pittsburgh* 22, *Pa.* 1948. 10 *pp.*

This is a series of bulletins, strictly factual in nature, which are based on questionnaires returned by manufacturing companies in Beaver, Washington, Allegheny, and Westmoreland Counties in Pennsylvania. They contain important data on employment and proposed industrial expansion plans.

Consolidation for Miami

THE TRUTH ABOUT CITY-COUNTY CONSOLIDATION—*Dade County Research Foundation*, 1416 *duPont Bldg., Miami* 32, *Fla.* 1948. 55 *pp.* $1.00.

This report urges passage by the voters on a proposed amendment to authorize Dade County to adopt a home-rule charter which would consolidate Dade County, the City of Miami, and four small adjoining towns, in a new city-county government to be called the County of Miami, and which would provide for subseqent optional consolidation of the other municipalities in the county.

The report points out that the people of Greater Miami should set up a strong and unified government which is capable of seeing the problems of the entire area and solving them in a business-like way.

Local Planning Text

LOCAL PLANNING ADMINISTRATION—*Published for the Institute for Training in Municipal Administration by the International City Managers Association* 1313 *E. 60th St., Chicago* 37, *Ill. Second Edition.* 1948. 337 *pp.* $7.50.

This is a new, completely revised edition of the volume in the Municipal Management Series originally published in 1941. The original volume was under the editorship of Ladislas Sego, city planning consultant, while the present work is principally the work of Howard K. Menhinick, Director of the Department of Regional Studies, Tennessee Valley Authority. The book is designed to serve as a correspondence course to provide public officials, planners, mayors, and city managers with the knowledge of things to do and look for in the preparation of a community plan.

As a correspondence course for persons unfamiliar with the planning field, the volume will be found a good introduction and compilation of some of the more standard accepted material. The section on the administrative aspects of local planning agencies and their relationships with the executive and other municipal departments is excellent in its emphasis.

However, the professional planner and technician, as well as the administrator who has been concerned to any extent with the development of his community, will find that the volume does not meet his needs for specific, up-to-date, detailed planning information. There is a lack of current case material and studies cited on how individual municipalities, especially those of smaller size, are meeting their planning problems. The section on "Citizenship Participation in Planning," a subject of immense interest to planners since the war's end, consists of a summary only 1½ pages in length. Similarly, the public relations of planning programs has been rather summarily dismissed. Adequate discussions of metropolitan area planning problems, means of overcoming them, and county planning are not found in the volume. Little or no mention is made of community industrial development activities and their relationship to planning. References to a good deal of recent and current literature in the field are not included. There is no discussion of the various national planning organizations and their services to planners, nor of the contributions being made to planning by related professions.

In the section, "General Policies Underlying Neighborhood Plans," some of the social forces involved in city planning are briefly mentioned, but they are not discussed further "since the racial question has to do with the substance, rather than with the administration of city planning." Unless the concept of local planning administration is broadened to include techniques for dealing with such basic social considerations it will accomplish little in the rebuilding of our cities to meet modern democratic needs.

The volume is adequate when considered within its self-imposed limitations as a training course dealing with standard material. However, its re-issuance clearly indicates the need for a more advanced detailed manual for professionally trained planners or experienced administrators.

Bakersfield Parking Survey

DOWNTOWN PARKING, Survey No. 1—*Planning Commission, City of Bakersfield, Kern County, Calif. December* 1947. 163 *pp.*

An excellent, comprehensive, well-illustrated parking survey which makes specific recommendations about what should be done in the central business areas of Bakersfield if it is to continue to attract outside customers and local trade. This can be done only if adequate and convenient parking space is provided.

The report clearly defines the areas of responsibility of public and private interests. It also makes the interesting estimate that within 18 years a municipal parking authority can amortize its investment and show a net income of over $400,000 per year, if the recommendations are followed. Also, during the same period, the business area should realize an additional revenue of over $12,000,000 as a result of better parking conditions and the attraction of additional shoppers into the Central Business District.

Planning and Housing Reports

NEW YORK, N. Y.—What is Happening to Modern Architecture? The Museum of Modern Art Bulletin, Spring 1948. No. 3. Illus. 21 pp.

NEW YORK, N. Y.—An Untapped Housing Market—Clues to new building profits from the responses of 600 middle-income Negro families to a survey conducted through personal interviews and direct-mail inquiry. Urban League of New York, 204 W. 136th St., New York 30. James Felt, Chairman, Housing Committee. April 1948. 19 pp.

SAN FRANCISCO, CALIF.—Progress in City Planning, San Francisco, Department of City Planning, January 1948. Illus. Charts. Maps. 24 pp.

UNITED STATES—Statement on Payments in Lieu of Taxes on Low-Rent Public Housing Projects. Prepared by the Housing and Home Finance Agency, Public Housing Administration, Washington, D. C. March 26, 1948. Mimeo. 8 pp.

Other Reports Received

CHICAGO, ILL.—Annual Report 1947. City of Chicago Department of Welfare, 25 S. Damen Ave. Tables. Illus. 26 pp.

CONSHOHOCKEN, PA.—Conshohocken's Budget 1948. Prepared by the Montgomery County Branch, Pennsylvania Economy League, Inc., 305-07 Norristown-Penn Trust Bldg., Norristown. Tables. Mimeo. 10 pp.

FREDERICKSBURG, VA.—Annual Report 1947. Published by the City Manager's Office. Tables. 74 pp.

GREENDALE, WIS.—This is Greendale. Published by the Greendale Decennial Committee, 6500 Northway, Greendale. Illus. 22 pp.

NEW LONDON, CONN.—Financial Reports for the Year Ending September 1947. Prepared by W. Z. White, City Auditor. Tables. 38 pp.

NORFOLK, VA.—Annual Report 1947. Prepared by the City Manager. Charts. Illus. 55 pp.

OGLESBY, ILL.—Annual Report to April 30, 1948. Report prepared by E. Hand, City Clerk. Tables. Illus.

PALO ALTO, CALIF.—Annual Report Ending June 30, 1947. Charts. Tables. 128 pp.

PALO ALTO, CALIF.—Your City Government, 1946-1947. Prepared by the Palo Alto City Council. Charts. Illus. Unpaged.

PETALUMA, CALIF.—Proposed Annual Budget for Fiscal Year Ending June 1949. Submitted to the City Council by the City Manager. Tables. Mimeo. 49 pp.

PHILADELPHIA, PA.—A New Kind of City Report. Published by the Bureau of Municipal Research, 311 South Juniper St., Philadelphia, Jan. 1948. Illus. 16 pp.

PHILADELPHIA, PA.—A. S. T. M. Standards on Paint, Varnish, Lacquer, and Related Products Published by the American Society for Testing Materials, 1916 Race St., Philadelphia 3. Charts. Tables. 565 pp. $4.35.

PHILADELPHIA, PA.—Refuse Collection Practices. Pennsylvania Economy League, Inc., 363 Broad Street Station, Philadelphia 2. Tables. Mimeo. 15 pp.

RICHMOND, VA.—Collection and Disposal of Garbage and Refuse in Virginia Cities. May 1948. League of Virginia Municipalities, 902 Travelers Bldg., Richmond. Tables. Mimeo. Unpaged. $0.50.

SALT LAKE CITY, UTAH—Annual Financial Report for Year Ending Dec. 31, 1947. By L. E. Holley, City Auditor. Tables. Charts. 78 pp.

SEATTLE, WASH.—Annual Report for Year Ending Dec. 31, 1947. By Department of Lighting, City of Seattle. Tables. Charts. Illus. 24 pp.

TENAFLY, N. J.—Annual Report 1947. Published by the Mayor and Council of Tenafly. Charts. Tables. 35 pp.

WASHINGTON, D. C.—The Marketing of Surplus War Property. By James Allen Cook. Public Affairs Press, 2153 Florida Ave., Washington. 210 pp.

UNITED STATES—Summary of County Government Finances in 1946, 1947. Department of Commerce, Washington, D. C. Tables. Charts. 13 pp.

UNITED STATES—Governmental Debt in 1947. Department of Commerce, Washington, D. C. Charts. 11 pp.

Street Construction in Important Role at the 1948 Road Builders Show

Equipment used for street construction and maintenance occupies a dominant place in the exhibits to be shown by the Public Roads Administration for the American Road Builders Association Road Show, to be held at Soldier Field, Chicago, from July 16 to 24.

Held in conjunction with the 45th annual ARBA Convention at the Stevens Hotel, the exhibits include a graphic picture of the results obtained from good traffic handling, illustrated by two models of a city mounted on a revolving stage.

With circus tents housing a sound moving-picture theater, the Hyster Co., of Portland 8, Ore., will augment its display with 14 tractor-equipment machines, including towing winches, tractor donkeys, cranes, and the recently announced Hystaway—a tractor-mounted dragline, clamshell, and crane. Three new pilot models of new Hyster tractor equipment will be displayed for the first time.

The Gorman-Rupp Co., 343 N. Bowman St., Mansfield, Ohio, will show the complete new line of centrifugal self-priming contractors' pumps providing unfailing centrifugal force, the impellor being the only moving part.

Concrete vibrators, vibratory paving tubes, soil compactors, and power plants are the exhibits that will be shown by the Electric Tamper & Equipment Co., Ludington, Mich. One of the items of prime interest is the Jackson vibrator paving tube, which may be attached to any standard finisher or trailed behind any standard spreader for completely vibrating the first course at any desired depth.

Among equipment useful to cities are the material spreaders manufactured by the Highway Equipment Co., Inc., 629 D Ave, N.W., Cedar Rapids, Iowa. Included is the company's latest Model E spreader, which mounts on any truck chassis. The material on the E is carried by a conveyor to the distributor disks; the machine may be used for dust and ice control, and the spreading of rock for asphalt streets.

The Road Show will serve as the debut for two new products from The Frank G. Hough Co., 710 Sunnyside Ave., Libertyville, Ill.: the HM Payloader, a tractor-shovel with all-wheel drive and a 1½-cubic-yard capacity, and the Hough Pick-Up street sweeper.

Black-Topper bituminous distributors and street flushers will comprise the display by E. D. Etnyre & Co., Oregon, Ill. Also shown will be a 4,000-gallon hauling tank mounted on a Highway Model E truck, a 1,200-gallon Superliner street flusher on a Chevrolet truck, the Entyre pumping unit mounted on a two-wheel dolly, and a special display of the new relieving section for the full-circulating spray bar.

A demonstration of the pressure method of determining the air content of freshly mixed air-entrained concrete will be a feature of the exhibit by the Portland Cement Assn., 33 N. Grand

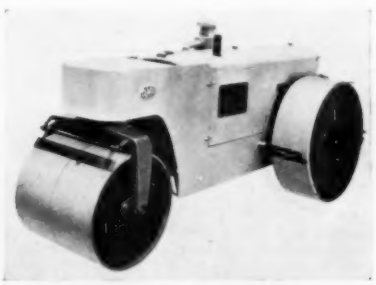
Among the machines exhibited by International Harvester is this giant TD-24 diesel crawler tractor.

The Gorman-Rupp Co. is displaying this Model 40-M 4-inch pump with air-cooled engine at the 1948 Road Show.

Jaeger will exhibit a complete sampling of its products at the Road Show, including this BP-5 bituminous mixer.

This truck, manufactured by Mack, will be one of the largest exhibits on display at the Show.

This scene from one of the films to be shown by Hyster shows the Hystaway at work equipped with a 30-foot boom and ESCO dragline bucket mounted on a Caterpillar diesel D7 tractor.



This 3-wheeled variable-weight roller will be on display at the Tampo booth from July 16 to 24.

Ave., Chicago, Ill. The pressure-type entrained air indicator, which enables accurate determinations to be made under field conditions in 7 or 8 minutes, will be shown in use.

New hydraulic and cable bulldozers and Gradebuilders for the Allis-Chalmers HD-19 will be displayed by the Baker Mfg. Co., Springfield, Ill.

Highspots of the exhibit by the Jaeger Machine Co., Columbus 16, Ohio, will be its demonstration of a complete line of New Standard sizes of portable air compressors in 75, 125, 185, 250, 365, and 600-cfm capacities and paving machines that include the new Type X diagonal-screed concrete finisher, the Model BP-5 bituminous paver, the new re-mixing-compacting concrete spreaders, and the side-discharge truck pavers.

A three-wheeled 10- to 12-ton variable-weight roller, which has five forward speeds and five reverse speeds and hollow wheels that can be filled with water or other ballast material to increase the total weight and ground pressure, is one of the machines that will be featured by the Tampo Mfg. Co., San Antonio, Texas.

Four units will be previewed by the Koehring Co., 3026 West Concordia Ave., Milwaukee 10, Wis: the Model 1005 2½-yard excavator; a 12-yard hauling unit; the Model 16-E Twinbatch paver, and the Longitudinal Finisher with a hydraulic operated screed lift.

The Parsons Co., of Newton, Iowa, will preview accumulated post-war changes, improvements, and latest additions to its Trenchliner series.

Two new models are being introduced by the Kwik-Mix Co., Port Washington, Wis., in addition to its line of cement, bituminous, and plaster-mortar mixers, a power wheel-barrow, and a new type of non-tilting 3½-S Dandie cement mixer.

Headlining the display by the J. D. Adams Mfg. Co., Indianapolis 6, Ind., will be the No. 610 motor grader, powered by a 100-hp International Diesel engine. The grader has a minimum weight of over 25,000 pounds, with over 18,000 pounds on the rear wheels.

The 99-H power grader, latest of the 99 Line from the Austin-Western Co., Aurora, Ill., includes eight features never before combined in a grader: all-wheel drive, all-wheel steer, precision side-shift, controlling traction, high-lift blade, extreme blade reach, completely reversible blade, and full hydraulic control.

A new model ZU FWD truck will be exhibited for the first time by the Four Wheel Drive Auto Co., Clintonville, Wis. The new truck has a rating of 33,000 pounds gross vehicle weight.

One of the largest trucks exhibited at the 1948 Road Show will be the new Model LV, 22½-ton-pay-load-capacity end dumper manufactured by Mack Trucks, Inc., Empire State Bldg., New York City. Weighing 38,000 pounds empty, the truck is powered by a 275-hp supercharged diesel engine.

In addition to a display of its equipment, the Barber-Greene Co., Aurora, Ill., will show in its Three Dimension Theater its new film, "Highway U.S.A.," as well as full-color movies of B-G equipment in action.

The Blaw-Knox Co., 2009 Farmers Bank Bldg., Pittsburgh 22, Pa., will show movies of its equipment, in use on actual projects. Among the machines to be displayed are a new automatic cement-weighing batcher and a new automatic aggregate-weighing batcher.

Miniature working models of equipment for crawler-type tractors will be exhibited by the Drott Mfg. Corp., 4344 N. Green Bay Ave., Milwaukee 12, Wis. Powered by a motor, these 1/6-scale models go through all the paces of the regular-size machines.

Diesel- and gasoline-powered trucks, tractors, and power units with the tractors shown with matched equipment and all of the trucks equipped for specific type of work are the units that comprise the display by the International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.

The Michigan Power Shovel Co., 373 Second St., Benton Harbor, Mich., will show mobile shovel-cranes, ⅜-yard and ½-yard excavators, and 6, 8, 10, and 12-ton cranes.

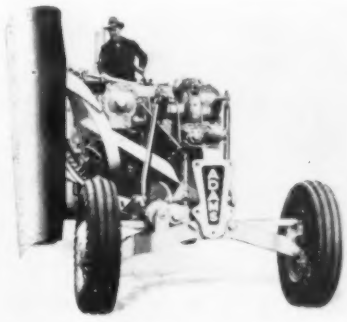
A combination tool heater and asphalt-binder kettle will be among the equipment featured by Aeroil Products Co., Inc., South Hackensack, N. J. Also on exhibit will be its Model 120 DVP heating and melting kettles for rubber-asphalt jointing compounds; and its Model 746 Heet-Master asphalt kettle.

Pipes arches and their advantages will be the main attraction of the Armco Drainage and Metal Products Assn., 2195 Curtis St., Middletown, Ohio. Also on display will be the Hel-

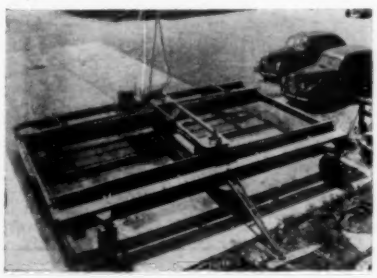
(*Continued on page 184*)

Among the rollers, heaters, kettles, and other equipment to be shown by Littleford is the Model No. 155 Trail-O-Roller which gives as much compaction as a 5-ton tandem.

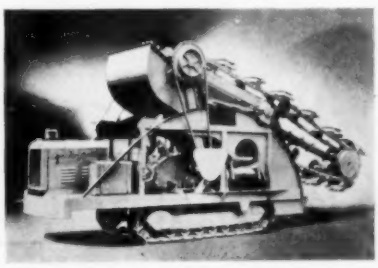
This Austin-Western grader to be shown at the Road Show includes eight features never before combined in a single grader.



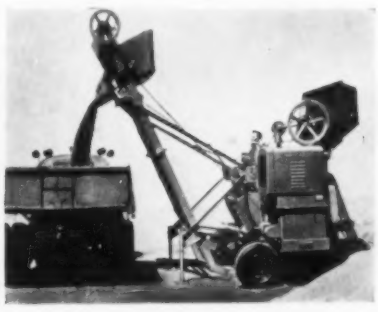
With a minimum weight of over 25,000 pounds and 18,000 pounds in the rear wheels, this Adams No. 610 motor grader presents an imposing picture at the Road Show.



The Longitudinal Finisher is one of the four new units that makes it debut in the Koehring booth at the Road Show.

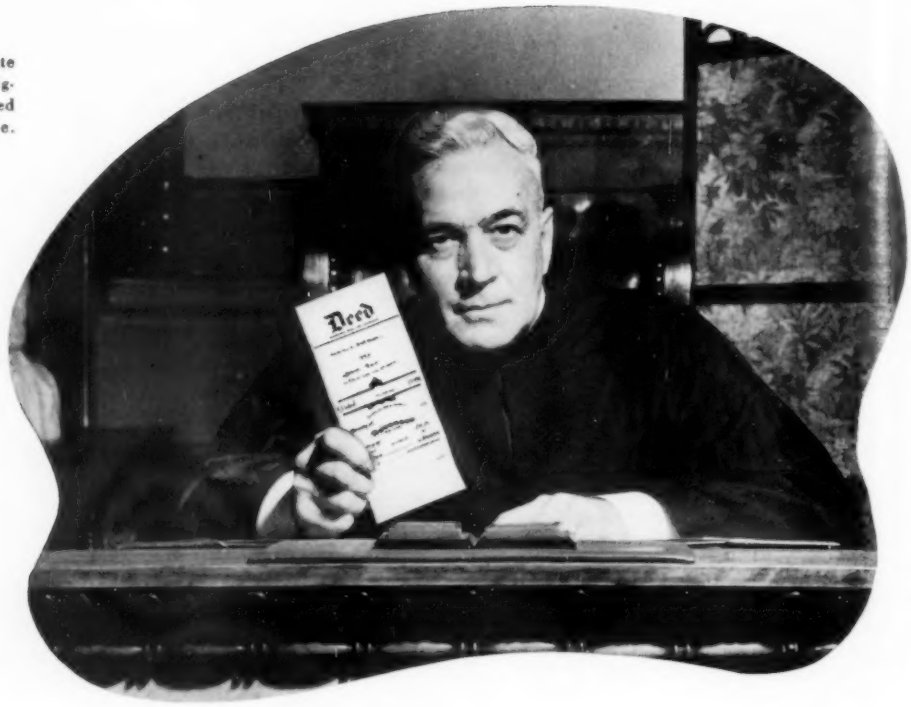


Another company showing an improved product is Parsons, with this ladder-type Trenchliner.



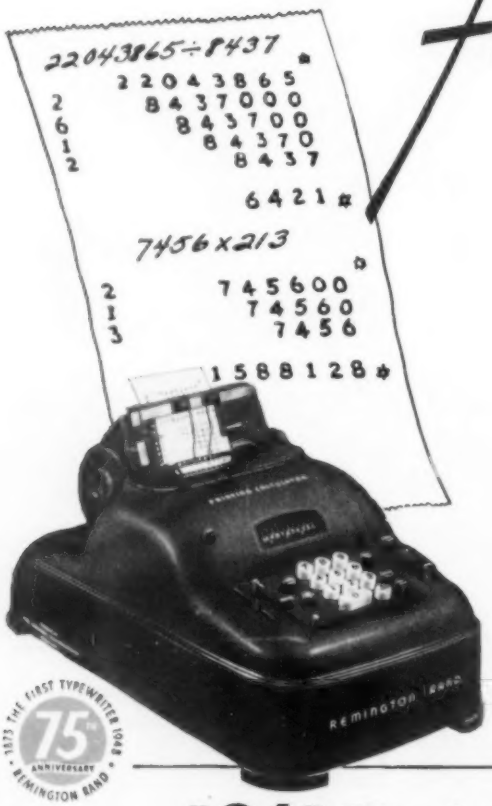
One of the two new bituminous mixers to be introduced at the Road Show. Kwik-Mix is the manufacturer.

● To prove ownership of real estate in a court of law, printed proof – original deed or a properly registered copy – is invariably acceptable.



Facts ABOUT PROOF

for office figure work



Only the new "96" automatic Printing Calculator gives you vital *proof on the printed tape*. Multiply and divide automatically, add and subtract too, on this versatile machine. Whatever the problem, every factor and answer is printed – *immediate* proof of accuracy, *permanent* proof for your records.

Minutes become seconds as fingers fly over the 10-key touch control keyboard and electrified operating keys. The Printing Calculator quickly completes the calculation and clears – automatically. Operators do more work, enjoy new ease under the stimulus of its quieter operation.

What's *your* figure problem? Have our local representative solve it with the new "96". He'll show you in how many ways it applies to your business. Phone him today.

Write today for "FACTS about o'Ece figures" to Remington Rand, Dept. AC-7, 315 Fourth Avenue, New York 10, N. Y.

1873 THE FIRST TYPEWRITER 1948
75th ANNIVERSARY
REMINGTON RAND

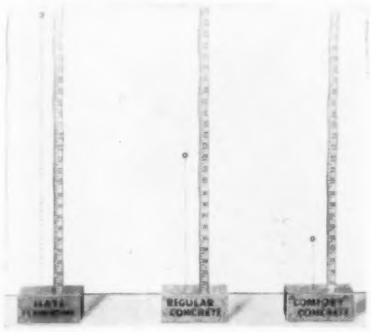
the new "96" Remington Rand Printing Calculator

News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings

Make Improved Concrete With This Admixture

An admixture that promises to put years of additional life into concrete structures and correct certain of the faults now found in concrete is now available for municipal public-works programs. This product is known as Hydropel, an integral waterproofing ad-



"Comfort Concrete" absorbs impact, as indicated by the rebounding of the steel ball 2½ times higher on regular concrete.

mix consisting of colloidal asphalt. It is a product of the American Bitumuls Company, 200 Bush Street, San Francisco 4, Calif.

This admix, added at the rate of 1½ gallons per sack of cement, reduces the water absorption of the "Comfort Concrete." It improves dispersion of cement and increases its ability to absorb shock without breaking. It affords complete protection from alkaline or salt attack and destructive gases. Except for a slightly darker color, Hydropel concrete appears identical to ordinary concrete.

The admix promises not only to make concrete paving longer-lived and more resistant to chlorides used for ice control, but also to make it smoother-riding. As progressive paving designers have almost universally agreed today, cracks in concrete occur not so much from expansion and contraction of the concrete, as from the warping action caused by the moist base of the concrete and dry surface, and also by the differences in temperature between the top and the bottom of the slab. Hydropel can correct one of the deleterious factors. With the admixture the moisture content will remain more nearly uniform, and the tendency of the concrete to crack because of warping will be reduced. This, of course, means that the pavement will also be smoother-riding.

Water- and sewage-treatment plants also can use to advantage concrete protected by this admixture. It will be particularly useful in sewage-treatment plants where the corrosive action of sulphides and other gases is well known. It also promises possibilities in the construction of concrete sewers, where deterioration of the concrete has been a major headache.

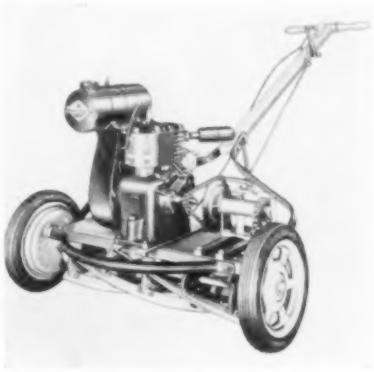
In public buildings, Hydropel again offers advantages, particularly when floors are subjected to heavy foot-traffic. The water-tightness of the slab insures that the floor will be warm and dry. And the floor will have a resiliency and softness that will make it much easier on the feet. Tests show that a steel ball falling on plain concrete will rebound 2½ times as high as it does on Hydropel concrete.

The American Bitumuls Company, manufacturers of Hydropel, will send literature describing more fully the concrete admix and giving specifications that tell how to mix, cure, and test concrete made in this manner.

Improved Power Mower For Heavy Jobs

The improved Super Bear power mower, which develops 1½ hp at 2,900 rpm, will be in the 1948 line of the Coldwell-Philadelphia Lawn Mower Co., Inc., Newburgh, N. Y. It is powered by a heavy-duty, single-cylinder, 4-cycle engine.

Beveled-edge cutting blades on the Super Bear eliminate friction; roller



The Super Bear can mow 4 acres a day.

chains and sprockets assure no-slip drive, and the dry-disc clutch gives an even flow of power. The wheels are supported by drive gears and turn on double Torrington needle bearings.

The Super Bear cuts a 21-inch swath.

Aluminum Ladder Holds Over 500 Pounds

The new Bardwell Featherweight aluminum ladder has unique patented safety ridges to prevent slipping on the extruded aluminum step. Combining extreme light weight with enough strength to hold over 500 pounds per step, the ladder has legs which are girder shaped for additional strength, and which are firmly riveted so that the ladder becomes more rigid as greater weight is applied, thus eliminating step rocking.

The ladder is available in 2, 3, 4, 5, and 6-foot heights; it is manufactured by Bardwell & McAlister, Inc., 2950 Ontario St., Burbank, Calif.

Light . . . But strong

Drott Bullclam Shovel Method of Sanitary Fill is

100% ANSWER TO DISPOSAL PROBLEM

For Historic Natchez, Mississippi

Natchez Pilgrimage
The old South still lives in Natchez. Tours are annually held to view this city's many historic mansions.

Says B. C. Jordan, Jr., *City Engineer of Natchez:*

"The City had a serious disposal problem. The incinerator was too small and too old to handle more than one fourth the trash generated. It was in such condition as to be dangerous to operate. The City and its private citizens had, by necessity, been dumping trash in the numerous ravines (called locally, "bayous") that run through the city. This caused a very unsanitary and unsightly condition. The sanitary fill has proven to be the 100% solution. It permitted us to pass a "no dumping" ordinance and is the first step in a clean up campaign. We are now taking care of more than four times as much trash at the fill as previously at the incinerator at less cost. The initial investment at the fill is about one eighth the cost of a new incinerator. At the end of a day's filling and covering there isn't a piece of paper visible to indicate that this is a trash dump. The Navy is planning to build an armory within 300 feet of the fill."

YOU TOO, will find this clean, modern and economical method is the right answer to your refuse disposal problem. We will gladly give you all the facts.

NATCHEZ SANITARY FILL. Drott Bullclam Shovel shown digging trench and compacting refuse. All operations are handled by this one machine — compacting, digging, moving dirt, dumping and covering. Note view of completed section of fill — clean, level, attractive!

Operated by DROTT POSITIVE CLOSED HYDRAULIC SYSTEM • SMOOTH • QUICK • DEPENDABLE. Keeps dirt and air out . . . keeps oil in! Used successfully on Drott equipment for many years.

FREE

On request; descriptive catalog and list of cities using Drott method. Also cost data on collection and sanitary fill equipment.

DROTT UNIVERSAL EQUIPMENT

DROTT MANUFACTURING CORP.
4344 N. GREEN BAY AVE. MILWAUKEE 12, WISCONSIN

New Cab-Over-Engine Trucks From General Motors

GMC's new medium-duty cab-over-engine truck.

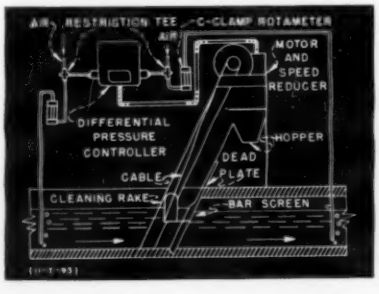
Two new cab-over-engine series of trucks with a total of 11 basic models have been added to the medium-duty line manufactured by the General Motors Corp., Truck & Coach Division, Detroit, Mich.

The FF-350 series is composed of five models with wheelbases ranging from 122 inches to 197 inches, a gross-vehicle-weight rating of 16,000 pounds, and gross-combination-weight rating of 26,000 pounds. The FF-450 is available in the same number of models and wheelbases. Gross yehicle weights for these units are 19,500 pounds with standard rear axle, and 21,500 pounds with optional heavy-duty rear axle, while gross combination weights are 34,000 and 37,000 pounds respectively.

The eleventh model, the FFR-351, is a special tractor model in the FF-350 series. Designed to meet the demand for a short-wheelbase cab-over-engine tractor in the 2-ton range, it is particularly offered for municipal departments which have standardized on medium-duty tractors of about 60-inch CA dimension. The FFR-351 has a 110-inch wheelbase and over-all length of 186 inches, giving it an OL dimension that is 16½ inches shorter than the shortest of the other models in either the FF-350 or FF-450 series.

All the trucks have a frame-mounted, angle-braced, bumper bar grille. The cab has the GMC built-in fresh-air ventilation system, adjustable seat, and easy-operating clutch and brake pedals.

Cut Power Costs Of Self-Cleaning Bar Screens



Although many water and sewage treatment plants operate power-driven bar screens continuously, it is not necessary with instrumentation and control equipment now available, according to the Brown Instrument Company, Philadelphia 44, Pa. By supplying controls that will operate the cleaning rake only when required, power costs can be reduced and unnecessary wear on equipment avoided.

Brown Instrument Co. supplies a differential level controller of the air-purge type for this service. As the screen catches more solids, the liquid level rises on the upstream side of the screen. When this differential rises to some predetermined figure, the controller energizes the cleaning mechanism, which continues to operate until the differential returns to normal. The air purge prevents operational failures caused by grease accumulations or other solids.

This type of control has an advantage over timed operation since it adjusts the work to the actual needs.

The control system should include the following elements:

One Minneapolis-Honeywell differential-pressure controller with electric single-pole, single-throw switch; the switch to open on decrease in pressure differential.

Two Minneapolis-Honeywell Adjustable Restriction Tees.

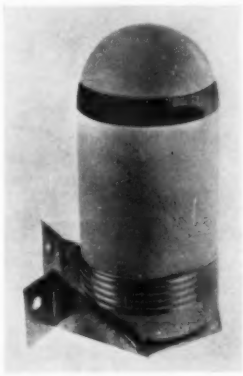
Two Fisher and Porter C-clamp Rotameters.

One air filter and dripwell.

One pressure regulator.

The Brown Instrument Co. has available for distribution Instrumentation Data Leaflet #9.6-2 that gives further details on this type of control mechanism.

Photoelectric Control for Street Lighting or Radio Towers



Special models of the Fisher-Pierce Photoelectric Control, originally designed for street lighting, are now available for the control of aircraft obstruction lights on radio towers. The controls automatically turn on at 35 foot candles and turn off at 55 foot candles. Model 61305 is rated to control 500 watts of incandescent lamp load, and Model 61306 is rated to control 3,000 watts. Both operate at 120 volts, 50 to 60 cycles.

The control has a Fail-Safe feature that keeps the light turned on in case of any functional failure. The Fisher-Pierce Co., 72 Ceylon St., Boston, Mass., has also incorporated in it a time delay of 15 seconds to prevent its being turned off at night by lightning or any passing lights or beams that may focus on it momentarily.

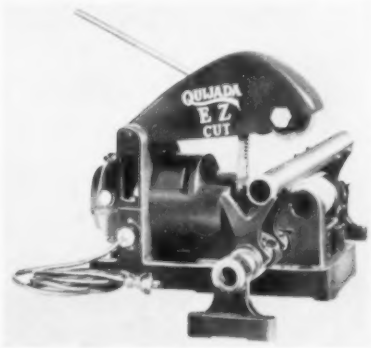
New Narrow-Beam Floodlight

The manufacture of a new large-diameter, narrow-beam floodlight, for use in municipal sports fields, recreational parks, and swimming pools, has been announced by the Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa. The VRC-20 floodlight achieves an exceptionally high beam efficiency of 42.6% despite the narrow beam. It has a 22° vertical by 25° horizontal beam spread. The beam candlepower is 305,000 when a 1,500-watt lamp is used; smaller sizes may also be used. The lamp has a hinged door and swing-over bracket to make cleaning and relamping easy.

Pipe Cutter Incorporates Automatic Features

Power-driven rollers, automatic stop-start action, and ball-bearing operation throughout are some of the features of the new high-speed E-Z Cut pipe and tube cutter manufactured by the Quijada Tool Co., Inc., 5474 Alhambra Ave., Los Angeles 32, Calif.

The machine, fully portable, works on pipe diameters ranging from ⅜ to 4 inches. The motor is integrally mounted, ½ hp, 110 volts, universal-type AC-DC, and provides direct-gear drive to the rollers rather than to the cutter wheel as in old-style machines. The gears are self-lubricating. Adjustable roller yokes provide necessary support for the pipe, yet permit free rotation.



Painted for U. S. Pipe & Foundry Co. by Paul Laune

U.S. cast iron PIPE

FOR WATER, GAS, SEWERAGE AND INDUSTRIAL SERVICE

THE quality of U. S. Cast Iron Pipe is controlled to a degree undreamed of by pipe founders a generation ago. Before the molten metal is poured into the mold of a Super-deLavaud centrifugal casting machine the important characteristics of the iron have been determined by our metallurgists. After the pipe has been cast our plant and research laboratories conduct numerous tests, in addition to acceptance tests, to assure the maintenance of quality in U. S. Pipe. This routine procedure at our several plants is enforced so that *we* may be confident that *your* confidence in our product continues to be justified. **United States Pipe and Foundry Co., General Offices: Burlington, New Jersey. Plants and Sales Offices Throughout U. S. A.**

Retired Bus Converted to Tow Car

This Cincinnati Street Railway Company converted a Mack bus, veteran of 14 years of hauling passengers, into the service of tow car pictured here.

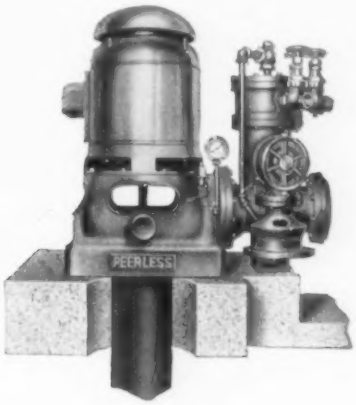
Protect Trees: Spray Before Leaves Appear

Dormant spraying, the application of sprays before leaves and flowers make their appearance, is particularly effective against the scale insects and a few others that can be controlled best before they emerge. Some of the fungous diseases can be controlled by early spraying also, according to M. W. Staples, field supervisor of The Davey Tree Expert Co., Kent, Ohio. Municipal officials concerned with the care of parks or wooded areas are advised that among the diseases and insects that can be checked by dormant spraying are scale, spruce gall aphis, pine shoot moth, apple scab, anthracnose, leaf spots, canker worm, elm leaf beetle, and Japanese beetle.

Vertical Fire Pump OK'd by Underwriters' Insurance Co.'s

The Underwriters' Laboratories, Inc., and Associated Factory Mutual Fire Insurance Companies have granted full approval of the Peerless vertical turbine fire pumps, augmenting the extensive line of fully approved Peerless horizontal centrifugal fire pumps (formerly Dayton-Dowd) that is manufactured by the Peerless Pump Division of the Food Machinery Corp., 301 West Avenue 26, Los Angeles 31, Calif.

Especially designed for instant operation even after long periods of inactivity, this type of vertical turbine fire pump is practically impervious to deterioration, permits installation in minimum floor space, and allows an extremely simplified discharge piping layout. Available in capacity ranges



from 500 to 2,000 gpm to operate against heads of 240 to 285 feet, the pumps are especially suited to pumping from wells, tanks, lakes, rivers, or sumps. They may be obtained either oil- or water-lubricated; electric, steam turbine, or right-angle-gear driven.

SANITARY *Garbage Disposal*

● It's the famous Brooks Load Lugger system of detachable truck bodies handled by a single truck! One-piece Brooks bodies are fully enclosed and liquid tight—positive protection against wind, rodents, flies or fire. Easily loaded (on the ground) by means of sliding doors. Discharge opening at top eliminates messy leakage of drop-bottom types.

Truck hoisting unit picks up loaded body in seconds, hauls it in upright position and dumps it clean—well back of truck. Load Lugger is hydraulically operated, easily installed on your trucks; exclusive flat bed design permits general haulage when special bodies not being used. Single man, the driver, handles entire refuse collection of many bodies. Write for catalog.

Brooks

BROOKS EQUIPMENT & MFG. CO.
1952 DAVENPORT RD., KNOXVILLE 1, TENN. U. S. A.

LOAD LUGGER
TRADE MARK REGISTERED

LOAD LUGGER · DAY PULVERIZER · CANE LUGGER

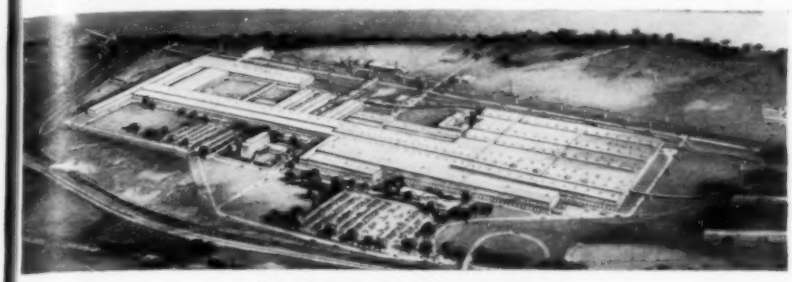
With HTH *on hand*, you're set for any hypo-chlorination need. Everyday chores like sterilizing reservoirs, filters, water tanks or new mains – these jobs get done *on the day* you want them done. And in emergencies, when there's a broken main to disinfect, or the power shuts off leaving your chlorinators useless, or a flood strikes – that's when you're glad to have HTH *within reach*. Better order a supply today. Ready for mailing is the brand-new 1948 edition of Mathieson's useful booklet: "Hypo-Chlorination of Water." Write for your copy. Mathieson Chemical Corporation, 60 East 42nd Street, New York 17, N. Y., *formerly The Mathieson Alkali Works (Inc.)*

Sanitation HTH . . . Liquid Chlorine . . . Chlorine Dioxide . . . PH-Plus (Fused Alkali) Caustic Soda . . . Soda Ash . . . Bicarbonate of Soda . . . Ammonia, Anhydrous & Aqua . . . Dry Ice . . . Carbonic Gas . . . Sodium Chlorite Products . . . Sodium Methylate

Mathieson
SANITATION HTH

Sanitation HTH is available in cases of nine 5-lb. cans and in 100-lb. drums.

Mile-Long Alcoa Plant Uses over 6¼ Million Pounds of Aluminum



Alcoa's new aluminum plant.

The Aluminum Company of America, 1859 Gulf Bldg., Pittsburgh 19, Pa., is utilizing its own product to the extent of more than 6¼ million pounds of aluminum in the construction of its Davenport, Iowa, sheet and plate rolling mill, which extends for almost a mile along the banks of the Mississippi River. About the only other metal extensively used is 25,000 tons of structural-steel framework.

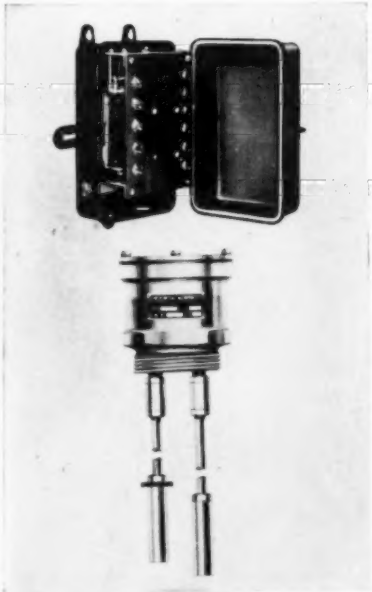
The new plant is being equipped to turn out the widest aluminum sheet in the world. The spectacular display of the use of aluminum in the industrial-construction field represents more than a desire to use the company's own product, according to Vice-president Thomas D. Jolly. Every application has been given careful study by Alcoa's engineering department and the engineers of the construction firms; aluminum has been used only where it possesses definite advantages over other materials in weight, cost, physical properties, ease of erection, maintenance, or similar factors.

General-Purpose Level Control

The Type 10CB1 is a floatless level control containing no vacuum tubes and operating with low voltage in the probe circuit. The instrument consists of an electric relay operating from a probe circuit through a transformer and rectifier. The control is sensitive to the level of virtually all electrically conductive liquids—acids, bases, salts, and even water or milk.

The probe circuit may be set at several different sensitivities, so it can discriminate between a liquid and its foam; it is not affected by the saturation vapor above a liquid in a closed tank, permitting positive control of acid in batch processing.

The control is manufactured by Photoswitch, Inc., 77 Broadway, Cambridge 42, Mass.



ALL ROADS LEAD TO BOOTH 3011

"GOOD ROADS" . . .

Exhibit of Champions

1948 Road Show

July 16-24 at Soldier Field, Chicago

The makers of "CHAMPIONS" invite you to inspect their new and improved line of snow plows, aggregate spreaders, leaf collectors, and many other products.

Good Roads MACHINERY

SEE the snowplow "fleet"—the SNO-CHASER, SNO-DOZER, TRIAL-MAKER, and other plows of every type and size. All Equipped with Full-Power Hydraulic and operated by "Push Button", finger tip control.

VIEW the postwar HANDY CHAMPION spreaders through which "pass the finest roads in the world", and other spreaders of all types of materials.

WATCH the amazing new GOOD ROADS leaf collector which gobbles up leaves with the appetite and capacity of a dinosaur, leaving city streets clean and drains open.

WHERE ALL ROADS MEET

at

"GOOD ROADS" *Exhibit of Champions*

GOOD ROADS MACHINERY CORP.

MINERVA, OHIO

This town GOT the gravy!

A new plant . . . 350 new jobs!

An industrial company selected *this town* for its new plant over all other cities in the area. Why? It had the one manufacturing essential . . . soft water!

* * *

Soft water reduces manufacturing costs and increases quality in practically every industry. Those cities that have municipally softened water, have a big inducement for new industries to locate there. And soft water for every family in town is a *luxury* which more than pays for itself.

Why not consult with Permutit regarding your water supply? There's no obligation. Just write to The Permutit Company, Dept. A-7, 330 West 42nd St., New York 18, New York, or to the Permutit Company of Canada, Ltd., Montreal.

Permutit

WATER CONDITIONING HEADQUARTERS FOR 35 YEARS

Caterpillar Personnel Changes

C. M. Adams

C. M. Adams has been transferred to the Caterpillar Tractor Company's advertising department staff at Peoria, Ill., and the territory which he covered as a district representative has been taken over by Don Stone. Mr. Stone's area is now being covered by William McCoy.

Weber Becomes Ad Manager For Thew Shovel

Charles S. Weber has been appointed advertising manager of The Thew Shovel Co., Lorain, Ohio.

Charles S. Weber

Formerly production manager for the White Advertising Co., of Cleveland, Mr. Weber brings over 20 years of experience to his new position with the manufacturer of power cranes and shovels. Before White, he was associated with The Glidden Co., The Willard Storage Battery Co., and Ralph W. Sharp, Inc.

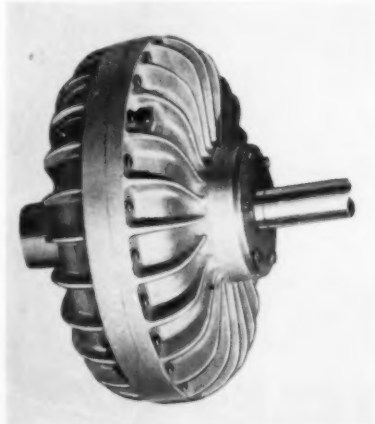
New Hydraulic Coupling Developed by CraneVeyor

The CraneVeyor Corp., 1240 So. Boyle Ave., Los Angeles, Calif., has developed a new Fluidrive hydraulic coupling which has cartridge-mounted shaft bearings designed as an integral part of the coupling.

Permanent shaft alignment is assured by the shaft-end bearings in the drive coupling; this also prevents shaft play, possible damage to Neoprene bellows seals, and subsequent oil leakage. The extra large bearings easily carry the combined radial and thrust loads as well as positively aligning the runner and impeller elements.

Straight radial vanes on the Fluidrive make possible operation in either direction with equal efficiency. Low inertia of the impeller and runner facilitates quick stops and reversing duty.

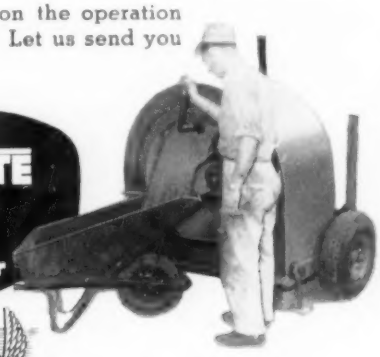
The mechanism is available in two sizes: 8.5-inch with capacity up to 5 hp, and 9.5-inch with capacity up to 7½ hp. Case-mounted models, double-shaft extension models, and units with motor and spur-gear reduction will be available shortly, according to the manufacturers.



3 CU. FT. of Asphalt in 30 seconds

Think what that means on those patching jobs! Fast operation, easy transportation from job to job (just tow it back of a truck or car) and an unusual mixing principle introduces a new economy to maintenance work on streets, roadways, walks, parking areas, floors and asphalt waterproofing jobs.

Write for full particulars on the operation of this unusual asphalt mixer. Let us send you Bulletin K-100.



Builders of . . .
Adnun Black Top Pavers, MultiFoote Concrete Pavers, and Foote Kinetic Mixers.

The FOOTE Kinetic mixer

FOOTE

MULTIFOOTE CONCRETE PAVERS
ADNUN BLACK TOP PAVERS
Kinetic ASPHALT MIXERS

THE FOOTE CO., INC.
1958 State Street
Nunda, N. Y.

A Roller For Every Job

Sturdy, heavy-duty rollers, engineered to stand up under the toughest conditions. Pierce-Bear Tandem Rollers are powered by economical Allis-Chalmers 4-cylinder industrial type gasoline engines. Variable weights, from 3½ to 5 tons with built-in water tanks for ballast and wet rolling.

Pierce Medium Bear 3½-5 tons

Pierce Baby Bear 2½-3 tons

The new 2½-3-ton Pierce Baby Bear is designed for close-in work and small area maintenance. It works against a curb up to 25 inches high and within 1½ inches of a higher wall or building. Final drive is within the rear roll. Use Pierce-Bear Tandem Rollers for all-around performance. Write for folder.

Pierce-Bear Rollers
Lewis Manufacturing Co.
415 Hoefgen Ave.—San Antonio 6, Tex.

For 16 Years ~

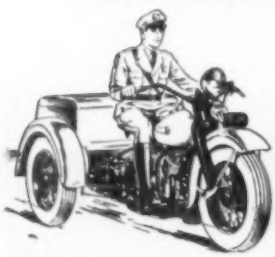
HARLEY-DAVIDSONS EXCLUSIVELY *in* AKRON, OHIO!

Shown at right is Captain of Traffic, E. L. Engelhart, and part of Akron's 42 Harley-Davidson Motorcycle Squadron.

CAPTAIN OF TRAFFIC, E. L. ENGELHART, and the city of Akron can be justly proud of the city's excellent traffic department. Mainstay of this department and large factor in Akron's efficient control of traffic is the 42-unit motorcycle squadron, consisting of 31 solo machines and 11 Servi-Cars. Akron has used Harley-Davidsons exclusively since 1932.

Like Akron, many other cities are increasing the effectiveness of traffic control and decreasing the accident rate, despite the hazards of over-age cars and trucks and the upward trend in motor vehicle registrations and traffic congestion. Use of Harley-Davidson Motorcycles, Servi-Cars, and Sidecars enables such cities to utilize manpower to utmost advantage and get best results in modern traffic enforcement. They have proved conclusively that no other method matches the motorcycle combination for solving today's greatly increased traffic and accident problems. Your city can do likewise. Call your Harley-Davidson dealer today and get complete information about the all around utility of Harley-Davidson Motorcycles, Servi-Cars, and Side-cars for efficient police work.

HARLEY-DAVIDSON MOTOR COMPANY • Milwaukee 1, Wisconsin



HARLEY-DAVIDSON
POLICE MOTORCYCLES

New 50-Hp Allis-Chalmers Motor Grader Has Tubular Frame

The new BD motor grader, manufactured by the Allis-Chalmers Mfg. Co., Tractor Div., Milwaukee 1, Wis., is a 50-hp machine, specifically engineered for low-cost maintenance and construction work, with a tubular frame design which distributes and absorbs shocks and stresses through flexing action. The tubular frame permits enclosed controls which cannot be knocked out of commission.

The Roll-Away moldboard rolls the dirt up and lets it fall away instead of packing it down, cutting down on friction of dirt against the board so that more dirt can be handled without requiring extra power.

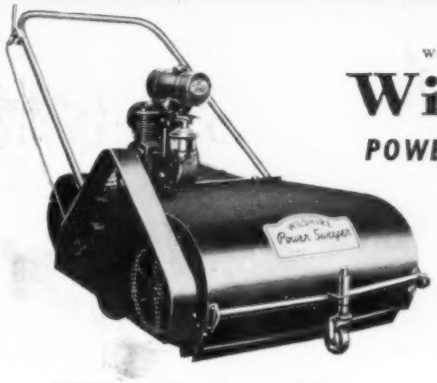
A 28-inch clearance from the cutting edge of the blade to the circle enables the BD to accommodate capacity loads passing through the 22-inch axle clearance without disturbing the rolling action of the load. Adjustment of the blade from the operator platform facilitates bank cutting, handling of large windrows, and wasting dirt up banks.

The BD is powered by a General Motors 2-cycle diesel engine. There are six forward speeds ranging from 1.30 mph to 14.69 mph, and three reverse speeds ranging from 1.55 to 5.41 mph.

Unit Crane Repairs Michigan Shore Line

This 1020 crane, manufactured by the Unit Crane & Shovel Co., 6411 W. Burnham St., Milwaukee 14, Wis., is setting huge concrete blocks along the South Shore Yacht Club docks of Milwaukee, Wis. Storm damage to the Lake Michigan shore line in this area necessitated immediate action, and the hook-roller construction of the Unit crane prevents future damage to the shore line.

CUT MAINTENANCE COSTS
IMPROVE PLANT AND YARD APPEARANCE



with the new
Wilshire
POWER SWEEPER

SPECIFICATIONS

POWER:	Gas motor, 1½ h.p., air cooled, 4 cycles.
REEL:	6 brushes, highest grade bristles, fixed in hardwood base mounted full-floating, ball-bearing equipped shaft.
FRAME:	Cast aluminum.
BODY:	20-gauge sheet steel
WHEELS:	Air wheels, 10x3.4" caster on adjustable bracket.
WEIGHT:	147 lbs. uncrated.
SWEEP:	36". Sweeps to within 1" of walls.

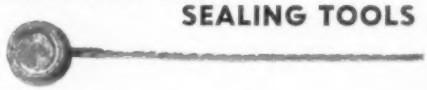
A clean, neat appearing plant or yard is the sign of efficient operations. The *Wilshire* is an all-purpose power sweeper that is specially designed to do a thorough cleaning job both indoors and outdoors. Collects waste and sweeps the ground or floor in one easy motion, thus reducing cleaning time and maintenance costs as much as 90%.

The *Wilshire* Power Sweeper keeps floors free of welding rod butts, nails, chips, paper, dirt—keeps drives, parkways, lawns, runways free of papers, sand, debris.

Wilshire
POWER SWEEPER CO.
4615 Alger Street
Los Angeles 26, Calif.

Insist on
AMALEAD
THE WIRE WILL BREAK BEFORE IT WILL PULL OUT OF LEAD
Reg. U. S. Pat.-Off.
SEALS OF MERIT—for EVERY PURPOSE

WIRE SEALS and SEALING TOOLS



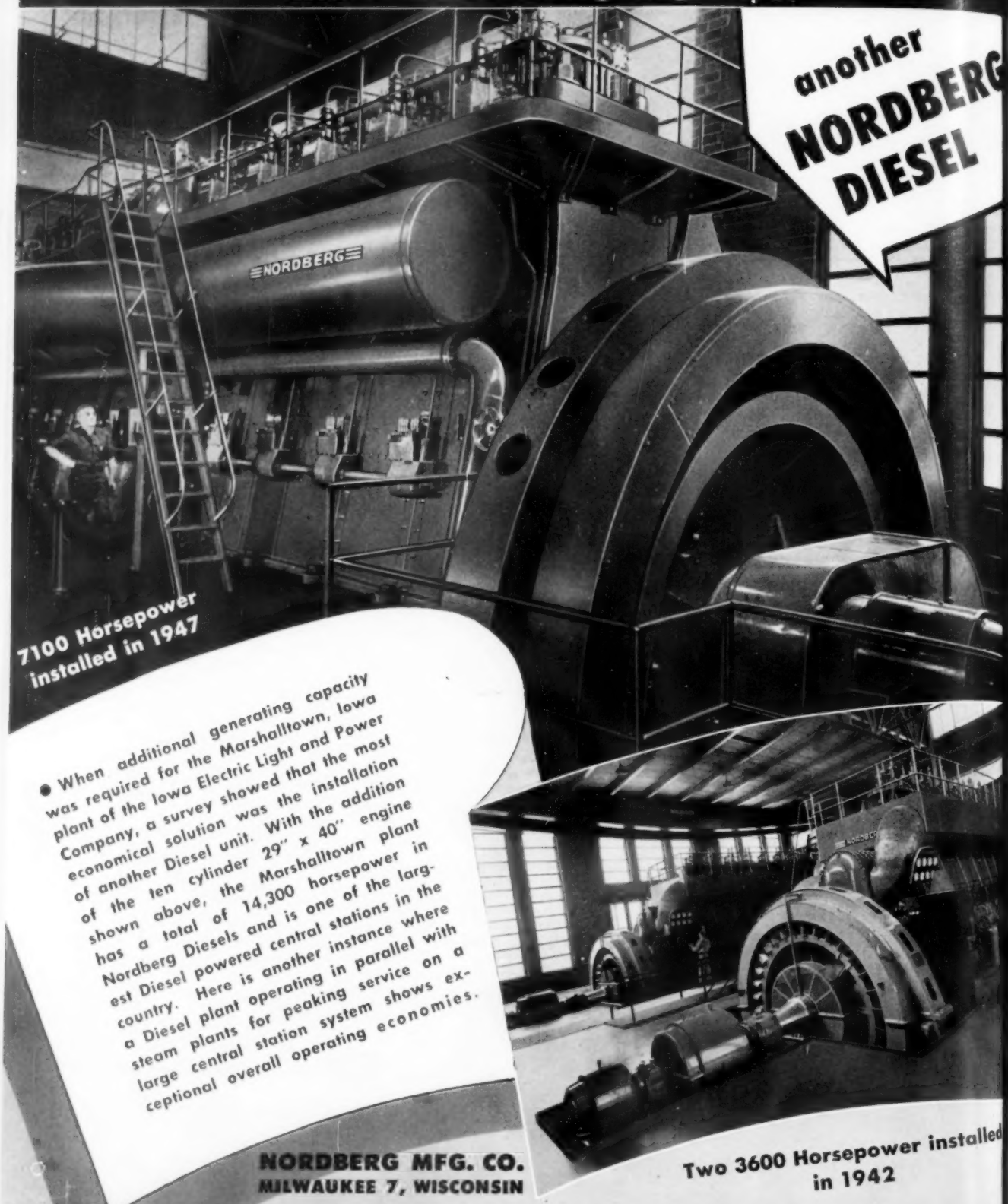
Above: seal for parking meter coin containers, water, gas and electric meters. Also padlock and coin bag seals and sealing tools. Wire lengths as required.

Above: self-locking car seals for automatic voting machines, water and steam valves—no sealing tool required; actual size ⅜" x 8½".

Write for samples, literature and quotations

E. J. BROOKS COMPANY
1873—*Protecting Industry 75 Years*—1948
169 North 13th Street
Newark 7, New Jersey

More Generating Capacity...



● When additional generating capacity was required for the Marshalltown, Iowa plant of the Iowa Electric Light and Power Company, a survey showed that the most economical solution was the installation of another Diesel unit. With the addition of the ten cylinder 29" x 40" engine shown above, the Marshalltown plant has a total of 14,300 horsepower in Nordberg Diesels and is one of the largest Diesel powered central stations in the country. Here is another instance where a Diesel plant operating in parallel with steam plants for peaking service on a large central station system shows exceptional overall operating economies.

NORDBERG MFG. CO.
MILWAUKEE 7, WISCONSIN

BUSCH-SULZER
A DIVISION OF NORDBERG

NORDBERG
DIESEL ENGINES

NORDBERG MACHINERY

Plant Correctly Identified

James B. Clow & Sons, Coshocton, Ohio

National Cast Iron Pipe Division, Birmingham, Ala.

In the advertisement of James B. Clow & Sons, 201-299 North Talman Ave., Chicago 80, Illinois, on page 152 of the June issue of **The American City**, the Coshocton, Ohio plant was incorrectly identified. The illustrations at the left show the modern Clow plants from which, in addition to others throughout the country, this manufacturer has continued for over 70 years to provide customers with everything required for water distribution systems.

O'Grady Named Water-Meter Supervisor

Joseph O'Grady has been appointed district supervisor of water-meter sales for the Pittsburgh district office of the Pittsburgh Equitable Meter Div., Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh 8, Pennsylvania.

Joseph O'Grady

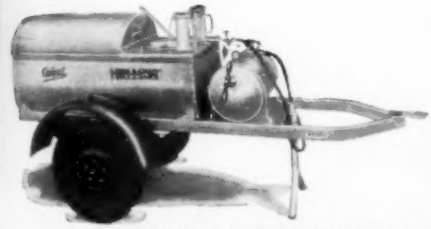
Mr. O'Grady has been connected with water-meter sales for Rockwell during the past seven years. Before that he was with the Iroquois Gas Co., of Buffalo, N. Y. In his new position he will supervise water-meter sales in Pennsylvania, West Virginia, Ohio, Maryland, and Delaware for Pittsburgh Equitable.

Vapor Recovery Appoints Klockner

Lewis W. Klockner, Jr., has been appointed Eastern sales manager by the Vapor Recovery Systems Co., Compton, Calif. Sales and engineering headquarters for this area remain at 30 Church St., New York, N. Y.

L. W. Klockner, Jr.

Mr. Klockner, a graduate civil engineer of Lafayette College, has had diversified experience in the sewage-equipment field: he has served as sanitary engineer for the New Jersey State Department of Health and has been associated with the R. B. Carter Pump Company.



For Quicker-Safer-Cheaper Asphalt Melting

USE THE 1948

Aeroil "Heet-Masters"

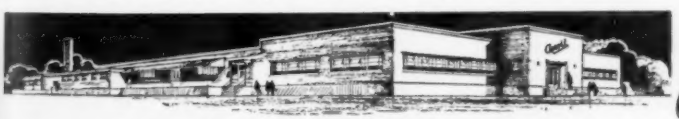
Write for Leaflet 400-AC

AEROIL PRODUCTS COMPANY, INC.

SOUTH HACKENSACK, NEW JERSEY

San Francisco Chicago Dallas Los Angeles Seattle Jacksonville

New Address After July 1st



NEW 2-ACRE MODERN Aeroil PLANT

Opens July 1st. Better Service for Aeroil Users

NEW SANITARY GARBAGE CONTAINER WITH BUILT-IN DDT FUMIGATOR

SANICON

42½" wide, 21¼" deep, 46½" high. Mounted on 3" ball-bearing casters.

- ENCLOSES GARBAGE CANS COMPLETELY
- RUSTPROOF—KEEP INDOORS OR OUT
- REPELS DOGS, CATS, RODENTS, ETC.
- MOUNTED ON CASTERS—EASY TO MOVE ABOUT
- CANNOT BE OVERTURNED
- SINGLE AND DOUBLE SIZES

SANICON eliminates health hazards and mess of exposed garbage -- keeps garbage cans enclosed and fumigated with built-in DDT compound. Complete protection against spilling, overturning and pestilence of flies, rats, vermin, disease-bearing insects, etc. SANICON is made of rust-proof aluminum alloy. Single and double size. WRITE FOR FREE FOLDER

Metal aprons funnel refuse into inside cans. Top doors remain open to allow use of both hands for loading.

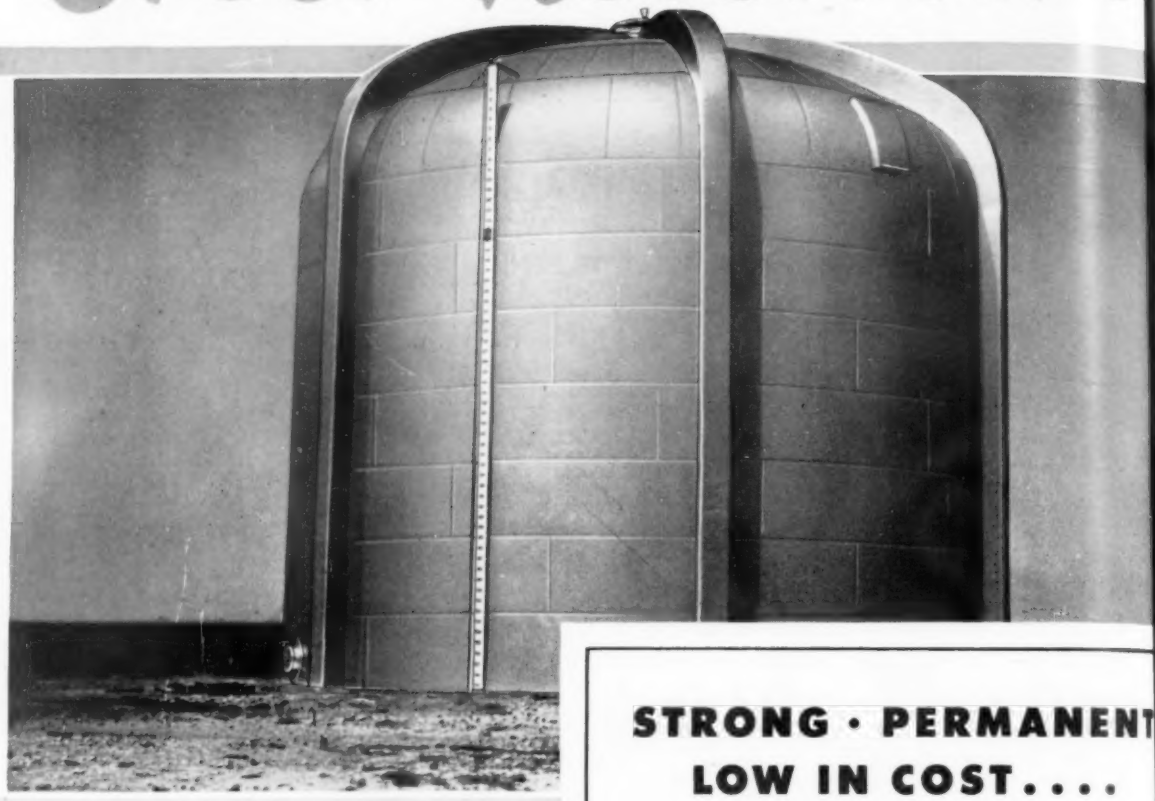
Double size holds two cans up to 26 gallons capacity each. SANICON can be easily wheeled to collection spot.

THE SANICON CO.

WESTERN UNION BLDG. NORFOLK, VA.

PITTSBURGH • DES MOINES

Steel Reservoirs



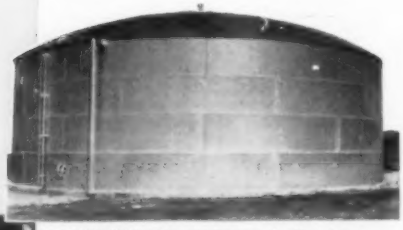
2,200,000-gallon steel reservoir, with ellipsoidal roof and ornamental pilasters. Diameter 80', height to roof 51'. Midland, Tex.

STRONG • PERMANENT
LOW IN COST....

for economical water storage

Two 3,000,000-gallon steel reservoirs, diameter 144', height 25'. Berryville, Va.

1,500,000-gallon steel reservoir, with ornamental cornice. Capitol Heights, Md.



1,000,000-gallon steel reservoir, diameter 84'3", height 24'10". Bottineau, N.D.

Steel—with its strength, permanence and low maintenance—offers the best service and greatest overall economy in water reservoir construction.

Steel Reservoirs by Pittsburgh-Des Moines provide these advantages fully—plus the design engineering experience, modern fabrication, expert erection and guaranteed satisfaction typical of this responsible organization. *Write for a quotation on your projected reservoir requirements, of any type or size!*

400,000-gallon steel reservoir, ellipsoidal roof; diameter 48', height 25'. Fort Benton, Mont.

Two 100,000-gallon steel reservoirs, cone roof; diameter 30', height 21'. Atlantic, Iowa

PITTSBURGH • DES MOINES STEEL CO

Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

PITTSBURGH . . . . . 3412 Neville Island
NEW YORK . . . . Room 915, 270 Broadway
CHICAGO, 1216 First National Bank Building
DES MOINES . . 913 Tuttle Str
DALLAS, 1217 Praetorian Build
SEATTLE, 520 First Avenue, So
SANTA CLARA, CAL. . . . . 619 Alviso Road

Pipe Order for a 4,900-Acre Airport

A portion of the more than ten miles of electric-welded steel water pipe installed at the New York International Airport at Idlewild, Queens, N. Y. Built by the Alco Products Division of the American Locomotive Co., Dunkirk, N. Y., 35,000 feet of 30-by-½-inch pipe and 15,500 feet of 36-by-½-inch pipe were delivered in record time on this million-dollar order.

G-E Establishes New Department

The General Electric Co., Schenectady 5, N. Y., has established a new operating department, the Construction Materials Department. C. D. Hepler, who was formerly vice-president in charge of marketing for The Trumbull Electric Mfg. Co., a G-E affiliate, has been appointed general manager.

C. D. Hepler

The new department, which will have its headquarters at Bridgeport, Conn., will be responsible for the products of the following present divisions of the Appliance and Merchandise Department: wire and cable, wiring devices, accessory equipment, conduit products, and metallic rectifiers.

Lighting Fixtures Certified by E T L

Manufacturers of various kinds of interior lighting equipment are among the leaders in affording independent assurance that their products may be purchased with confidence. Each group of manufacturers of a particular type of equipment has formulated specifications intended to require what is considered to be the best practicable performance. These specifications are largely functional, affording the designer full freedom of expression as to style, pricing, and features that are not involved in the electrical, mechanical or illumination performance.

The specifications for all these equipments make provision for independent laboratory tests of specimens of products in order to determine initially the conformity or non-conformity with specification requirements. These tests are made by the Electrical Testing Laboratories, Inc., 2 East End Avenue at 79th Street, New York 21, N. Y. Write for "Certification of Lighting Equipment," including folders explaining the tests on several types of lighting equipment.

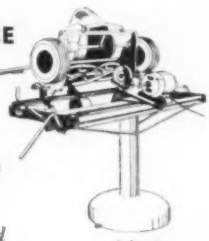
THE MODERN LAWN MOWER SHARPENER

CUTS MAINTENANCE COSTS

•

LOWER CAPITAL INVESTMENT

•



Economically and Quickly Sharpens All Municipal Mowers

Priced $241.50 (less motor)

Sharpens All Reel Type Mowers • Hand, Power or Gang • 10 to 20 Minutes • No Dismantling No Extra Attachments Needed

All reel type mowers, from 5-inch edgers to 36-inch power mowers, are quickly sharpened to extreme ends of both left and right twist reel blades. Handle, wheels, roller and motor remain in place when sharpening is in process. Bed knife is sharpened in same brackets that hold mower in grinding position. No extra attachments required. One lever puts mower or bed knife in grinding position. 100% steel construction. Grinding head rides on five ball bearing races. Small, compact, easy to operate. Sharpens wood chisels, joiner knives and planer blades without extra attachments. Skate Sharpener Attachments available.

1, 3-hp. G.E. 60-cycle Motors now available—$21.50 extra.

Send for Free Bulletin No. 25B

ORDER NOW • IMMEDIATE DELIVERY

MODERN MFG. CO.

160 N. FAIR OAKS AVE. • PASADENA 1, CALIF.

ZONEMARK

THE INTERNATIONAL TRAFFIC PAINT

This four-lane southbound artery in Baltimore orderly channels traffic with Zonemark.

5 yardsticks to measure the value of "ZONEMARK"

1 **QUICK DRYING**
May be driven over without pickup in 15 to 30 minutes according to weather conditions.

2 **WEARS LONGER—BY TEST**
Your own records will prove that Zonemark outwears other paints.

3 **GOES FARTHER—BY TEST**
Impartial tests prove Zonemark has 10% to 30% greater coverage.

4 **COVERS WITH ONE COAT**
One coat covers the darkest surface with a clear-cut opaque film.

5 **DAY AND NIGHT VISIBILITY**
Correct surface finish assures greatest visibility by night or day.

•

no other traffic paint has ALL these advantages

•

Available in
White • Medium Yellow
Orange • Bright Red • Black

ZONEMARK

THE INTERNATIONAL TRAFFIC PAINT

Made Exclusively By

HANLINE BROS.

Paint Makers

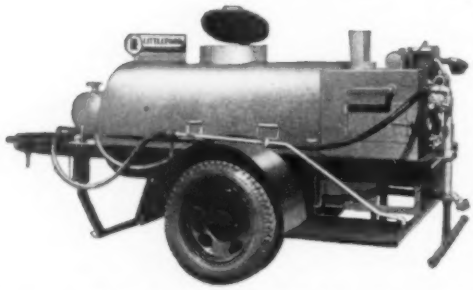
BALTIMORE 30, MARYLAND

PATCH THOSE HOLES
INSURE AGAINST RAVELING

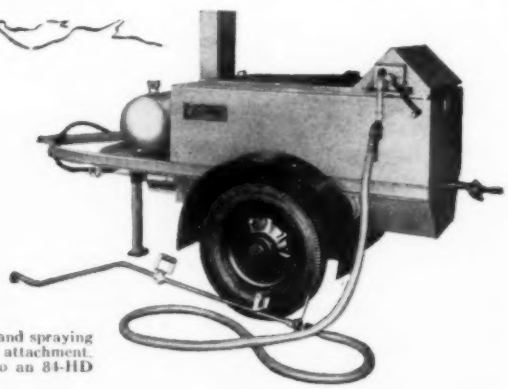
ROLL THEM WITH A LITTLEFORD

Model 155 TRAIL-O-ROLLER

This Littleford Trail-O-Roller really gets around. It trails as fast as a maintenance truck can go. Dozens of patches can be rolled in a single day. With roads, highways and streets in such a deplorable condition, each patch should be made permanent, should be rolled with a Trail-O-Roller. Rolling a patch saves time and money—the patch is in to stay—it does not come out. The portability of the Trail-O-Roller and the patented Hydraulic Raising and Lowering Device makes it easy to roll every patch and the time it takes to roll it adds practically nothing to the cost. When patching your winter wrecked roads, roll them with a Trail-O-Roller, make it a permanent job. Write for Bulletin No. 3.



For small application, patch or crack filling jobs, apply your bituminous material with a Littleford No. 101 Utility Spray Tank, it's the most versatile unit made today. Has 10 ft. circulating spray bar, hand spray attachment and pouring pot outlet. Write for Bulletin No. 5.



Those pot holes can easily be patched by applying stone and spraying asphalt with a Littleford 84-HD Kettle with a hand spray attachment. For fast heating, efficient operation, there's no equal to an 84-HD Kettle. Write for Bulletin No. 1.

BLACK TOP ROAD MAINTENANCE EQUIPMENT SINCE 1900

LB LITTLEFORD

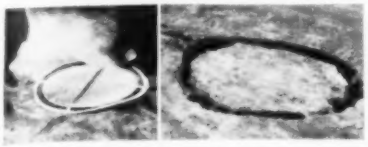
LITTLEFORD BROS., Inc.

500 E. PEARL ST., CINCINNATI 2, OHIO

Frozen Manholes Opened in Minutes

Opening frozen manholes by means of a powdered chemical sprinkled around the rim of the cover was tried out successfully by the telephone company in Albany, N. Y. The covers were 2½ to 9 inches deep in ice, and had to be located by a Wilkinson line detector. The usual method of removal is by pick which, in addition to taking from one hour to a whole day, has the disadvantage of sometimes striking sparks that ignite the carbon monoxide gas inside with disastrous results.

Ice-Destroy is available in 3- to 50-pound containers or 600-pound drums



When the cover has been located, a template is placed over it and Ice-Destroy sprinkled into the openings.

This is the 5-minute result with 7- to 9-inch ice. The usual manner was by pick which usually took 4 to 8 hours.

The cake of ice is lifted out and later replaced over the cover to prevent accidents to passing traffic.

from the Chemical Development Corp., 31 Garden St., Newark, N. J. For economy of material, a 25-, 27-, or 30-inch template of metal or rubber is placed over the manhole, with an opening around the rim. On manholes covered with ice 2½ inches thick the cover was removed in one minute, using 1½ pounds, of Ice-Destroy. A cover encrusted with 7 to 9 inches of ice was lifted in 5 minutes, using 9 pounds of the powder. An anti-freeze has been incorporated in the product to prevent the ice from reforming. A 100-foot, 16-mm color film was made of the Albany demonstration, and is available to municipalities without charge.

Gorman-Rupp Elections

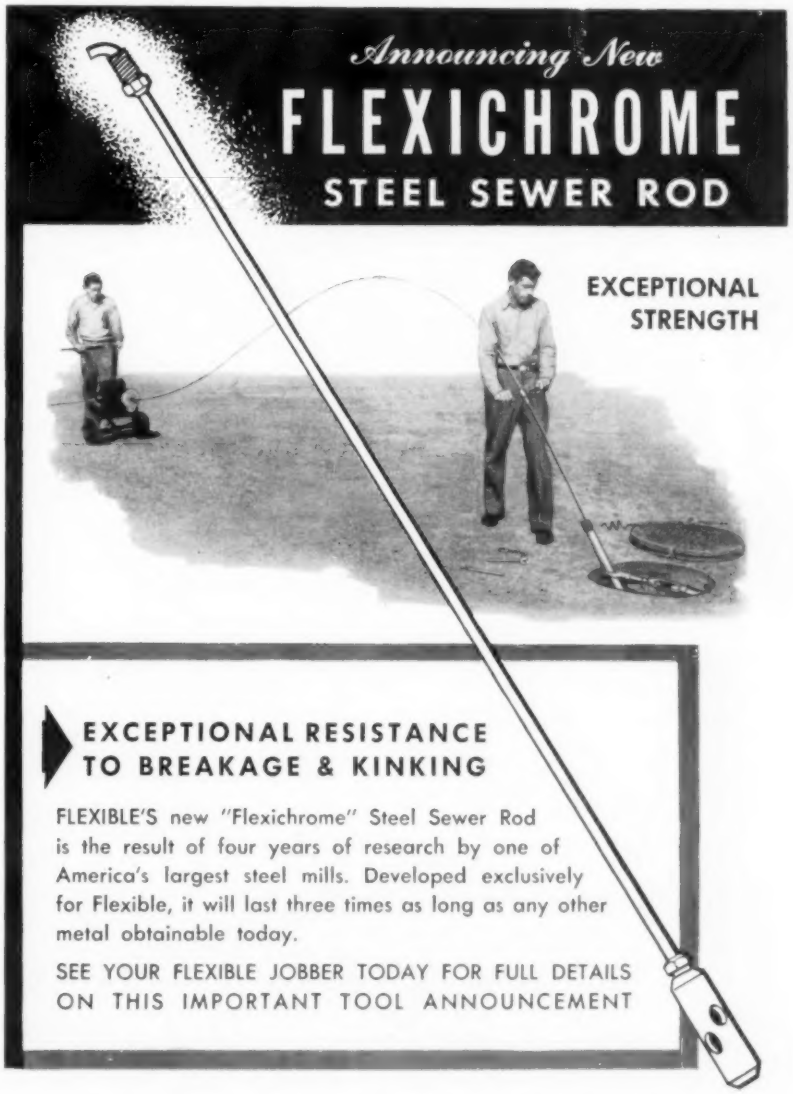
The Gorman-Rupp Co., Mansfield, Ohio, has elected three new vice-presidents: Warren E. Rupp, Walter O. Buehler, previously vice-president of the Carver Pump Co., and Kenneth H. Cadigan.

New Sales Area, Managers for Mathieson

The Mathieson Chemical Corp., 60 E. 42nd St., New York 17, N. Y., has opened a new southern sales area with offices in the Queen and Crescent Bldg., 344 Camp St., New Orleans, La. Vernon Woodside, who has been with Mathieson since 1936 as a member of the Sales Development and Technical Service Department, will be the district sales manager for the New Orleans territory.

Succeeding the late W. S. Hammond as district sales manager of the Houston sales district is Roland F. Boehm. His headquarters are in the Second National Bank Bldg., Houston, Tex.

Vernon Woodside **Roland F. Boehm**


Announcing New
FLEXICHROME
STEEL SEWER ROD
EXCEPTIONAL STRENGTH
EXCEPTIONAL RESISTANCE TO BREAKAGE & KINKING
FLEXIBLE'S new "Flexichrome" Steel Sewer Rod is the result of four years of research by one of America's largest steel mills. Developed exclusively for Flexible, it will last three times as long as any other metal obtainable today.
SEE YOUR FLEXIBLE JOBBER TODAY FOR FULL DETAILS ON THIS IMPORTANT TOOL ANNOUNCEMENT

FLEXIBLE SEWER-ROD EQUIPMENT CO.

9059 Venice Blvd., Los Angeles 34, California

141 W. Jackson Blvd., Chicago, Ill. · 401 Broadway, New York 13 · 147 Hillside Ter., Irvington, N. J. · P. O. Box 165, Atlanta · 2011 Central Ave., Memphis, Tenn.

801 E. Excelsoir Blvd., Hopkins, Minn. · 29 Cerdan Ave., Roslindale 31, Mass. · P. O. Box 694, Pittsburgh · P. O. Box 447, Lancaster, Texas · 41 Greenway St., Hamden, Conn.

Why let Snow Stop Traffic Flow?

Play safe with BAKER

This winter you can keep your streets and highways open if dependable Baker plows are on the job. Baker truck plows are built for high speed plowing, with specially curved moldboards that throw the snow high and wide with a minimum of truck power. Light in weight, but sturdily constructed and rigidly braced, Baker truck plows are ready to tackle the toughest jobs. Tripping blades enable pavements to be swept clean without injury to surfacing. There is a Baker V type, one-way or reversible for any job and any truck.

For heavier duty service, Baker plows are built for crawler tractors, wheel tractors and motor graders. Big and husky, they buck through deep drifts to open and widen heavily drifted areas.

Whatever your snow problem may be, there is a proper size and type of Baker plow to suit your needs. Prepare now to keep your roads and streets open this winter. Send for new literature, Today.

BAKER MFG. CO., Springfield, Illinois

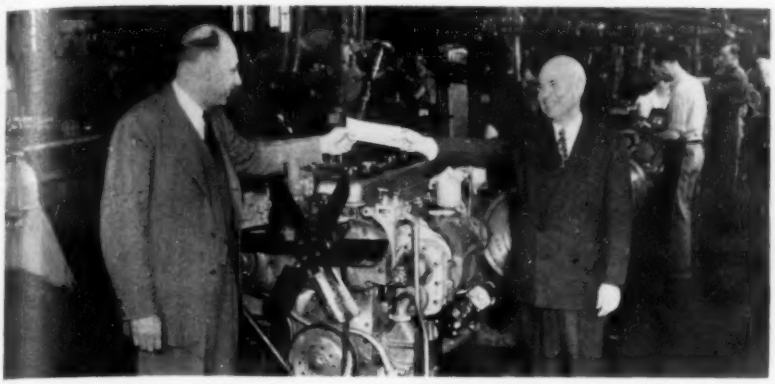
BAKER

TRUCK • TRACTOR • GRADER PLOWS SINCE 1908

Baker V Plow and Allis-Chalmers tractor slicing through and widening deeply drifted highway.

Baker Plow on Allis-Chalmers wheel tractor cleaning walks and intersections.

One-Quarter Million General Motors Diesels



George A. Zink, works manager of the Detroit Diesel Engine Division of the General Motors Corp., 13400 West Outer Drive, Detroit 28, Mich., delivers the 250,000th GM diesel engine to V. C. Genn, general sales manager. The unit will be shipped to the Euclid Road Machinery Co., in Cleveland, Ohio.

R. B. Rennaker Appointed Sales Manager

R. B. Rennaker

R. B. Rennaker has been appointed sales manager of the mobile radio-telephone division of the Federal Telephone and Radio Corp., Clifton, N. J., manufacturing associate of International Telephone and Telegraph Corp.

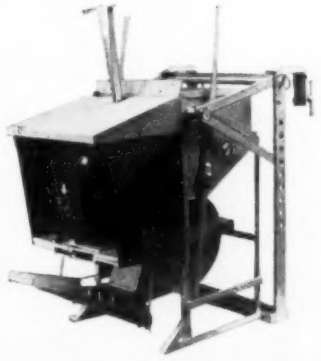
New Type Bar Cuts Steel Use

With Webrib, a new form of reinforcing bar fabricated by the Webrib Steel Corp., 120 Broadway, New York 5, N. Y., concrete designers can use about two-thirds the amount of steel ordinarily used and provide the same strength, according to Webrib design data.

The Webrib bar.

In a deformed dumbbell shape, the bar is produced by cold spiral bending and twisting an intermediate grade bar to increase its yield point by 50%; the yield point of ordinary intermediate grade steel is raised from a specified value of 40,000 psi to a minimum value of 60,000 psi, making available a considerable saving in the amount of steel required in reinforced concrete construction. The high bond strength inherent in the shape of the spiral bent bar is further increased by the presence of transverse ribs, the height and space of which are calculated to balance their capacity in bearing on the concrete with the shearing strength of the concrete between the ribs. The equivalent sizes of the Webrib bar of comparable-grade steel may be substituted in a structure on a bar-for-bar basis, without redesign.

TARCO'S 'Scotchman'



CHEMICAL SPREADER

For efficient ice and snow control. *Theoretical* quantities applied. It's *fast,* mounts on any dump truck or pick-up in three minutes. *Bulk* or *bagged* materials may be used. Perfect salt pattern, no waste, *ordinarily* saves 50% or more. Full width, or right, or left, complete control. Quality built of *stainless steel.*

TARRANT MFG., CO.

East Ave., Saratoga Spa., N. Y.

..BLIND DIGGING wastes TIME and MONEY

FISHER M-SCOPE Pipe & Cable Finder

. . . . locates pipe bends, dead ends, service stubs and traces the exact course of buried pipe and cable lines up to 12 feet deep, with pinpoint accuracy. This inexpensive electronic device eliminates time and money wasted on exploratory digging.

FISHER M-SCOPES $149.50 UP DEL.

Send for FREE Booklet

16 page operating manual describes M-SCOPE and many of its profitable uses.

Write Dept. 3

Fisher Research Laboratory, Inc.

PALO ALTO · CALIFORNIA

Modern Streets Mean Paving with CONCRETE

MOTORISTS and taxpayers today want a ***low-annual-cost,*** smooth-riding pavement whether it's for a business thoroughfare, a residential street or a heavy-duty metropolitan expressway.

Any pavement can be built with a smooth-riding surface; *concrete stays that way for years!*

• CONCRETE STREETS ARE DURABLE

Concrete has the strength and stamina to render long years of uninterrupted service because it stands up under the continuous impact of traffic—regardless of blistering summer heat or heaving winter frosts that produce humps, hollows and pot holes in all but the sturdiest pavements.

• CONCRETE STREETS ARE SAFE

In wet or dry weather, the gritty tire-gripping texture of concrete affords uniformly high skid protection. Its high light reflectance factor—the highest of all pavement surfaces—makes concrete safer at night and helps reduce street lighting costs.

• CONCRETE STREETS ARE ECONOMICAL

The first cost of concrete is usually less than that of other pavements of equal load-carrying capacity. It lasts longer and costs far less to maintain. It is the real ***low-annual-cost*** pavement.

• CONCRETE STREETS ARE CLEAN

Clean and easy to keep clean—that's concrete pavement. Spic-and-span streets are an asset to any neighborhood or business district.

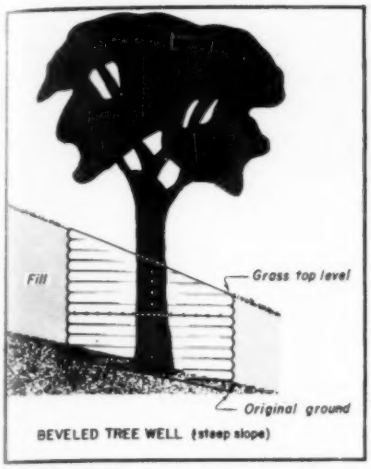
Write today for free illustrated booklet, "Concrete for Modern Streets." Distributed only in the United States and Canada.

PORTLAND CEMENT ASSOCIATION

DEPT. 7-4 • 33 W. GRAND AVENUE • CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

New Metal Tree Well



A line drawing of the beveled tree well.

Simple and low-cost protection for standing trees in fill areas is claimed for a new line of galvanized corrugated metal tree wells being introduced by United Steel Fabricators, Inc., Wooster, Ohio. The matching semi-circles are made to a 24-inch height as standard, but are produced to any height on specification. Well diameters range from 36 inches to 84 inches as specified. A special beveled tree well is also produced for hillside fills.

Industrial Chemical Sales Holds Round Table Discussion

A sales seminar was held recently by the Industrial Chemical Sales Division of the West Virginia Pulp and Paper Co., 230 Park Ave., New York, under the leadership of Joseph M. Wafer, recently elected vice-president and director of the company.

J. M. Wafer

Helping to correlate latest technical developments with the over-all sales program were several members of the research staff. These included Dr. Paul R. Wiley, director of the Charleston, S. C., research staff; J. W. Hassler, director of the Tyrone, Pa., laboratories; and W. D. Thompson, of the Luke, Md., research division.

In addition, these members of Industrial's sales organization attended the meeting: John P. Harris and Kenneth Steele of the Chicago office; Ralph A. Hagberg, Cleveland; W. A. Welch, Philadelphia; and John J. Butler, A. T. Cirino, A. W. Cunningham, A. J. Dimick, J. E. Drury, F. E. Eveline, W. Giles, E. A. Sigworth, and J. F. Zieserl, all of the New York sales staff of the organization.

South Bend

GUTTER-SNIPE

Model "E" Pick-Up Street Sweeper

Sweeps 6 feet wide
Holds 1¼ yards dirt
Turns in 19' circle
Can sweep up a 10% grade
Has three sweeping speeds, also reverse and cruising

We also manufacture SOUTH BEND "Big 6" Street Flushers, Bituminous Distributors, Bituminous Maintenance Units, and Gravity and Pressure Sprinklers.

Municipal Supply Company, South Bend 23, Indiana, U. S. A.

ECONOMY

EFFICIENCY

RELIABILITY

. . . with the "Diamond Line"

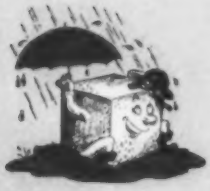
You'll find all kinds of advantages in using McDonald's Diamond Line Waterworks items for repairs, replacements or new installations. The experience of 92 years, the precision of skilled craftsmanship, the close tolerance of modern manufacturing methods—all combined to make better products—for dependable service. This item is a McDonald Diamond Patent Cap Inverted Key Curb Stop. Round Way, galvanized malleable tee handle, for copper service pipe. This item also available in a Stop and Drain pattern. In sizes ½, ¾, 1, 1¼, 1½ and 2 inches.

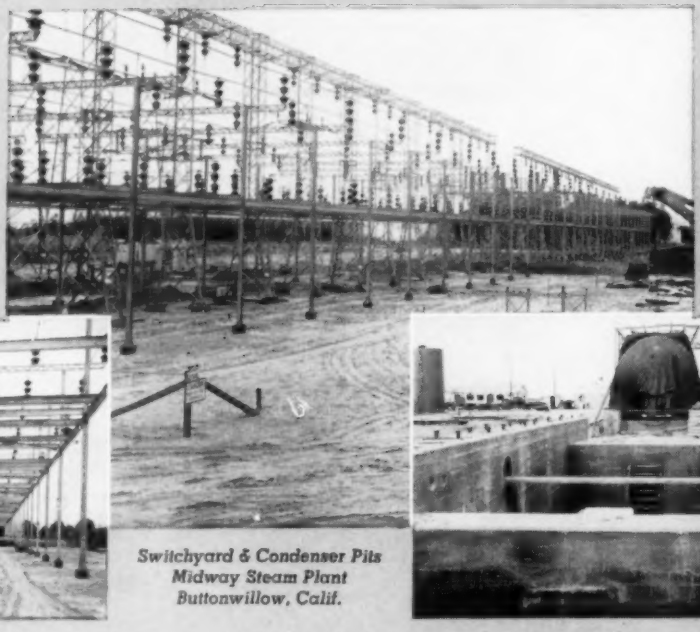
EST. 1856
McDonald

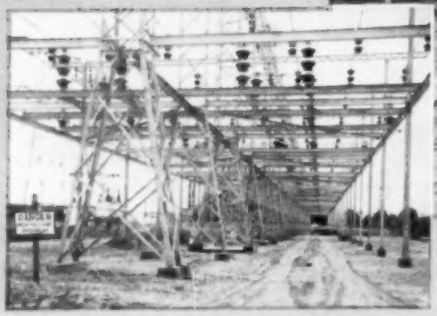
A. Y. McDONALD MFG. CO.
DUBUQUE, IOWA
BRASS GOODS • PUMPS • OIL EQUIPMENT

HYDROPEL®

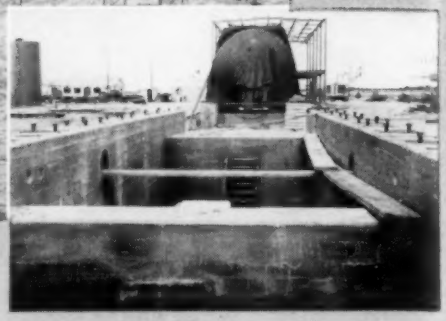
Integral Waterproofing Admix for Concrete







Switchyard & Condenser Pits
Midway Steam Plant
Buttonwillow, Calif.



Pacific Gas & Electric Co. chooses HYDROPEL

This largest West Coast Utility used HYDROPEL in all concrete foundations for new additions at Buttonwillow, California. Here, the soil is white with corrosive alkali—ordinary concrete crumbles. HYDROPEL protects this large plant investment at small cost.

MERITS of HYDROPEL CONCRETE

1. **Resists** chemical action. Repels action of alkaline or neutral salts and chemical gases.
2. **Reduces** moisture absorption from capillarity by 75% to 80%. Effectively reduces destructive percolation of water under pressure.
3. **Eliminates** internal stresses caused by volume changes due to wetting and drying, freezing and thawing.
4. **Cushions** shock and vibration—adds toughness.
5. **Increases** concrete strength of lean mixes. Toughness offsets slightly less strength of richer mixes.
6. **Adds** warmth and resilience. "Comfort Concrete" for humans and livestock.
7. **Saves** cost by protecting and prolonging life of concrete under severe conditions. HYDROPEL is inexpensive to use and to buy.

SEND for THESE HELPFUL BOOKLETS

Clip out this cut of booklets—check the ones you wish. Mail with your name and letterhead to address of our plant nearest you.

AMERICAN BITUMULS COMPANY

BALTIMORE 3, MD. · E. PROVIDENCE 14, R. I. · PERTH AMBOY, N. J. · COLUMBUS 15, OHIO
200 BUSH STREET • SAN FRANCISCO 4, CALIF.
WASHINGTON 6, D. C. · BATON ROUGE 12, LA. · ST. LOUIS 17, MO.
OAKLAND 1, CALIF. · LOS ANGELES (Inglewood), CALIF. · TUCSON, ARIZ. · SAN JUAN 23, P. R.
CANADIAN BITUMULS COMPANY, LIMITED • Leaside, Ont.—Montreal E., Que.—Vancouver, B. C.

Stabilized Base Construction With One Machine

The P & H Single Pass Stabilizer, applicable to the building of base course for airport runways, taxiways, streets, or parking areas, performs in one pass the operations of pulverizing, blending, injecting liquids, and mixing of all the ingredients. It may be used for soil cement, cement-treated base, various combinations of cut-back asphalt, asphalt emulsions or tar with soil, sand, or aggregates, as well as for various types of mechanical and chemical stabilization.

A self-propelled dual unit, the P & H consists of a power unit which is mounted on tractor-type crawler treads and a processing unit suspended from the rear of the power unit.

The material is built up to about the center of the shaft and is thoroughly agitated and squeezed between the opposing pugmill blades to complete the mixing operation. As the machine moves forward, the processed material is deposited in a thoroughly loosened uniform depth and density the width of the processing chamber, and is ready for immediate compaction.

The machine is manufactured by the Harnischfeger Corp., Milwaukee 14, Wis.

Plastic Street Signs

This Boston, Mass., street-name sign is made of black Plexiglas ⅛-inch thick. The street name is painted on the front of the acrylic plastic material, made by Rohm & Haas Co., Washington Square, Philadelphia 5, Pa., and the sign is slipped into the same standard which held the previous metal sign. Where it is desired to protect the paint, a transparent plastic coating can be applied. The advantages of Plexiglas are light weight and weather resistance. At any time the lettering can be removed in a caustic solution and the sign repainted, with no damage to the plastic.

Portable Marker Lights

Flashing portable marker lights suitable as airport-obstruction indicators or for marking temporary hazards on streets or highways are announced by the Westinghouse Electric Corporation, Pittsburgh 30, Pa. Two types are available: a portable marker light for nighttime use only, and one for both day and night in which the light source is mounted on a large, clearly visible cone finished in international orange.

Coiled neon-tube-type lamps are used in both types of lights powered by a standard, dry-type Hotshot battery. Flashed at 120 times a minute, the average life of the battery is 150 hours. For obstruction marking, a red lamp is used which is approximately equivalent to a 2-watt incandescent lamp. Gold, green, or blue fluorescent type can also be used.

TESTERATE

THE WATER METER SLEUTH

THAT HELPS FIND LOST REVENUES

Practically *all* meters slow down with time. That means lost revenue for water utilities.

The Ford Testerate Indicator checks the rate of flow of the test stream at a glance, down to flows as low as ¼ G.P.M.

The Testerate is easily connected to any meter testing outfit. Anyone can use it with little practice.

Income from lost revenues can pay for the Testerate many times over in a short period of time. Write for Catalog No. 46 and complete information.

THE FORD METER BOX COMPANY, INC.

FORD

FOR BETTER WATER SERVICES

Wabash, Indiana

FIRE plays no favorites

Records kept in uninsulated metal files are but worthless ashes after a fire. Safe-Kardex assures your records against damage from fire — brings your vital personnel facts through unharmed!

. . ."that's why we protect vital records in SAFE-KARDEX"

says RUSSELL J. COONEY, Personnel Director, of San Mateo County, California

Aware of the need for giving adequate protection against fire to vital personnel records, this progressive county department uses Safe-Kardex — combining the unparalleled finding speed and centralized efficiency of Kardex Visible records with the certified protection provided by Safe-Kardex equipment . . . laboratory tested equipment that has withstood exposure to fires of 1-hour duration reaching temperature up to 1700° F.

Mr. Cooney says: "Naturally we don't expect that fire will strike the county building, but we believe that to ignore the possibility and to neglect the low-cost record protection afforded by Safe-Kardex will amount to something less than full performance of our duty to our taxpayers and citizens."

With San Mateo County's Kardex *visible* system, the status of the approximately 750 established civil service positions and of the persons filling them is completely available for analysis and review at all times.

A title insert in the *visible* margin of the record shows the name of the occupant of each position, with identifying information, while the permanent record card carries the department, division and salary range, together with significant facts concerning each occupant of the position. Vacancies are signaled on the margin for rapid review of personnel conditions.

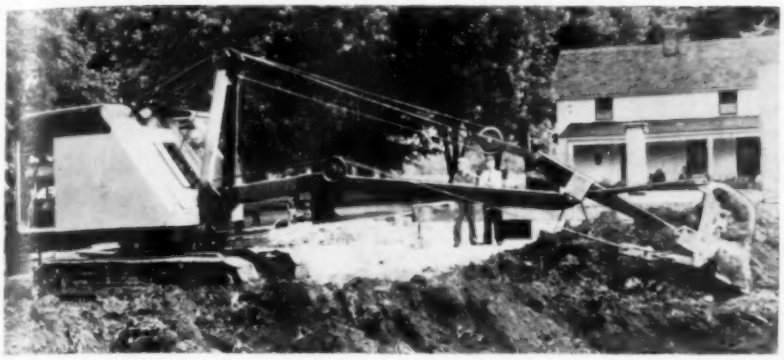
Why not make sure that *your* responsibility for the maintenance of public records is fulfilled by top efficiency *plus* certified safety? Send for KD 275, 6-page illustrated folder: *Government Civil Service Personnel Records*. Write Systems Division, 315 Fourth Avenue, New York 10, N.Y.

1873 THE FIRST TYPEWRITER 1948 — 75 ANNIVERSARY — REMINGTON RAND

Remington Rand

THE FIRST NAME IN RECORD SYSTEMS

A Little Shovel With a Big Reach

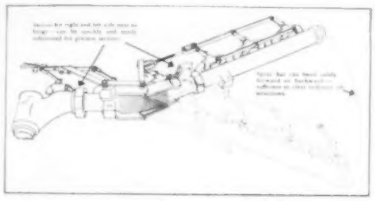


Ditch digging and other excavation goes fast with Buckeye's Model 70 trench hoe that goes all the way for a long reach without excess weight.

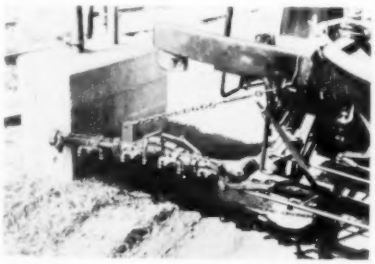
The trench hoe has a ¾-yard bucket 39½ inches wide, and digs to a depth of 15 feet. It is especially useful when excavating for large sewer mains, manholes, reservoirs, and similar types of construction. The shovel has a full 360° swing, plus quick-acting, smooth controls.

Bulletin No. 846R, published by Gar Wood Industries, Inc., Findlay, Ohio, gives full information about the Buckeye trench hoe, and other Buckeye shovels.

Spray Bar Clears Obstructions Bending Backward, Forward



A line drawing of the relieving section for circulating spray bars.



And here is the mechanism shown clearing an obstruction.

E. D. Etnyre & Co., Oregon, Ill., has put on the market a new relieving section for circulating spray bars which is not merely a flexible metal hose but is made of a solid steel accordion bellows with neither joints nor openings in the tube, thus preventing leaking. The mechanism permits the spray bar to bend either forward or backward sufficiently to clear any ordinary obstruction, without bending or damaging any part of the bar.

The section, added to a circulating spray bar, willl eliminate breakdowns resulting from accidential collision with bridges, tree stumps, abutments, and other roadside obstructions.

The substitution of the new development for the section now in the mechanism permits the following time-saving features:

The circulating spray bar
will adjust to the crown of the road,
will adjust in height,
will shift horizontally,
will fold for traveling,
will spray from any part of the bar, and
will extend easily and quickly.

New Cutter Cuts Concrete 3 to 5 Times Faster

The new Backlin STRATEDGE concrete cutter cuts fast, straight and clean, leaving sharp, straight edges and 90° corners. Depth of cut can be regulated from 1" to 3". A 6 HP engine drives the specially designed diamond saw.

The STRATEDGE cutter will cut or score concrete, asphalt, marble, tile or terrazzo. Used on large or small jobs by contractors, highway crews and municipalities. It is economical to operate and easy to move from job to job. Write for folder giving full details on the Backlin STRATEDGE.

Backlin Products Co.
Burlington, Wisconsin

Line Up with Mark-Rite

Ideal for Parking Meter Area Striping

Lightweight and simple to operate, Mark-Rite is the easy way to paint guide lines. Use it on streets, parking lots, schools and playgrounds, stadiums, swimming pools and warehouses. Aluminum construction and gravity feed assure long, trouble-free service with a minimum of maintenance, requires no air or electrical outlets.

Fully guaranteed. Immediate delivery. Write for illustrated folder and prices.

Mark-Rite **UNIVERSAL MFG. & SALES COMPANY**

8716 Santa Fe Ave. South Gate, Calif.

with E & J RESUSCITATION EQUIPMENT

To reduce likelihood of deaths from drowning *make sure* that your fire dept. emergency service, beaches and pools have sufficient up-to-date E & J resuscitation equipment. Full information and demonstration, with no obligation; write or wire *at once* to Dept.N-7

E & J MFG. CO., Glendale 1, Calif.

PRELOAD PRESTRESSED TANKS

PRELOAD PRESTRESSED CONCRETE TANKS ARE IMMEDIATELY AVAILABLE FOR A WIDE VARIETY OF SERVICES—WITH ECONOMY IN DESIGN AND CONSTRUCTION AND WITH LOWEST COMPARATIVE LONG-TERM MAINTENANCE COSTS

WATER STORAGE and TREATMENT

Ground, Standpipe and Elevated Tanks; Settling Tanks, Clarifiers, etc.

PETROLEUM INDUSTRY

Crude Oil, Bunker C, Fuels Oil, Gasolines, etc.

SEWAGE TREATMENT

Sludge Digesters, Clarifiers and Filters, etc.

PAPER MILLS

Pulp, White Water, and Black Liquor Tanks; Savealls, Precipitators, etc.

STORAGE SILOS

Grain, Cement Dry Chemicals, Coal, Rock, etc.

CHEMICAL & PROCESSING INDUSTRIES

Saveall Tanks, Acid and Alkali Storage, Precipitators, Mixers, etc.

Preload Prestressed Concrete Tanks, utilizing Preload Wire Prestressing, are available *now* using local labor and materials. No waiting—construction can start in several weeks—completion in several months. With no exposed metallic surfaces and dense Gunite construction, Preload tanks have a long record of "low-maintenance-cost-service" under an extreme range of weather conditions. Over 500 Preload Prestressed Tanks are in municipal and industrial service.

Send for tank data and our brochure "The Distinguished Clientele of The Preload Companies", a partial list which illustrates the wide versatility and established performance of Preload Tanks.

THE PRELOAD COMPANIES

420 LEXINGTON AVE., NEW YORK, N. Y.

Designers and Builders of Prestressed Concrete Storage Tanks and Pressure Pipe
Prestressed Concrete Bridges and Cement Lining of Pipe in Place

The Preload Corporation
New York—Boston—Washington

The Preload Central Corporation
929 Porter Bldg., Kansas City, Mo.

PRELOAD TRADE MARK

The Preload Pacific Corporation
333 Kearney St., San Francisco

The Preload Co. of Canada, Ltd.
7325 Decarie St., Montreal, Que.

Laboratory Tests

A laboratory technician checks soap hardness of a water sample.

A pH determination by electrometric methods.

Two of the tests frequently made by Foster Snell, Inc., 29 W. 15th St., New York 11, N. Y., include the soap-hardness determination and the determination of hydrogen ion activity, or pH test.

The Foster D. Snell laboratories handle a wide range of chemical and bacteriological work, much of which is directed along the lines frequently needed in municipal service. The work would include tests and inspection for water-supply, sewage-treatment, asphalt- and portland-cement concrete work.

To Revalue Properties in Plattsburgh, N. Y., and East Paterson, N. J.

Contracts for the revaluation of all properties for assessment in the city of Plattsburgh, N. Y., comprising almost 4,000 parcels and for the revaluation of industrial properties in the borough of East Paterson, N. J., have been awarded to Frederick E. Marx, head of the firm bearing his name with headquarters in the Empire State Building, New York.

The company specializes in valuation engineering for public bodies, having recently also appraised numerous warhousing cities being disposed of by the U. S. Public Housing Administration.

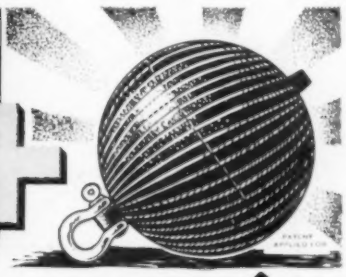
Infilco's Pittsburgh Engineer

Infilco, Inc., 325 W. 25th Place, Chicago 16, Ill., has assigned Clyde H. Irwin as field engineer in charge of the company's Pittsburgh office.

Before his association with Infilco, manufacturers of water-purification, sewerage, and waste-treating equipment, Mr. Irwin was senior chemist at the Baldwin Filtration Plant in Cleveland, Ohio. From 1943 to 1946 he was research assistant at the Case School of Applied Science. For his work at Case on the problem of detecting and eliminating contamination in military water supplies, he was recently awarded a Certificate of Merit by the National Defense Research Committee.

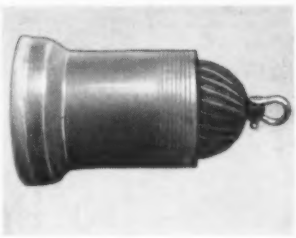
A. A. Kalinske, formerly chief hydraulic engineer for Infilco, has been promoted to the position of director of development; this new position will also cover activities in the company's hydraulic, mechanical, and electrical research laboratories.

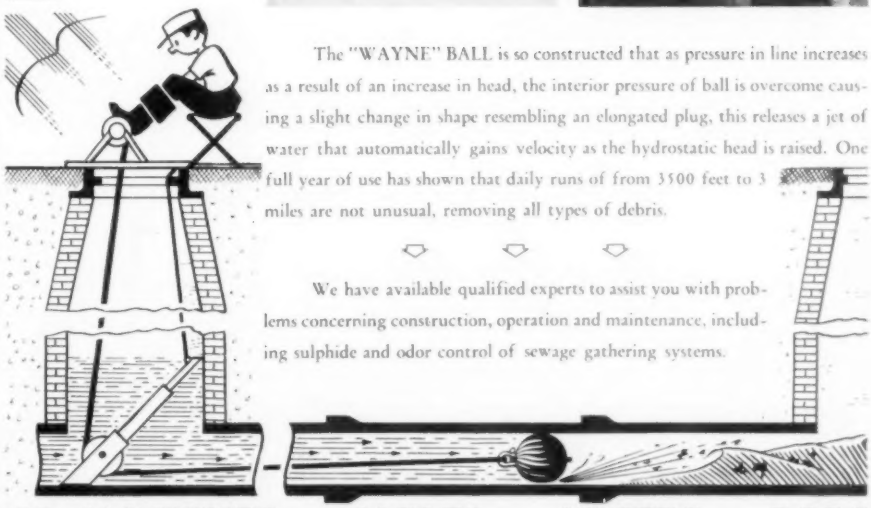
Efficiency PLUS ..with the WAYNE ball



● Constructed of a scientifically compounded rubber. Diagonal ribs along periphery provide a squeegee action that removes slime along with sand, rock, etc.

● Use of "WAYNE" BALL reduces trouble calls resulting from stoppages . . . three cubic yards of debris removed from 440' run of 12" sewer in 32 minutes.





The "WAYNE" BALL is so constructed that as pressure in line increases as a result of an increase in head, the interior pressure of ball is overcome causing a slight change in shape resembling an elongated plug, this releases a jet of water that automatically gains velocity as the hydrostatic head is raised. One full year of use has shown that daily runs of from 3500 feet to 3 miles are not unusual, removing all types of debris.

We have available qualified experts to assist you with problems concerning construction, operation and maintenance, including sulphide and odor control of sewage gathering systems.

NO MACHINES — CABLES — AUGERS — RODS

THIS COULD HAVE BEEN CHECKED!!

SIDU Co.
BOX 3537
LONG BEACH • CALIFORNIA

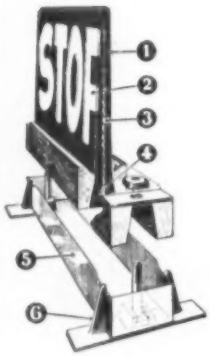
RUBBER

The BEST sign you will agree,
Is one that you can always see.

Sure Stop

Day or Night TRAFFIC SIGNS

IT STOPS 'EM!



Simple to INSTALL

Easy to REPLACE

STOP

SCHOOL SLOW

NO LEFT TURN

NO U TURN

Above are STANDARD signs ready for prompt shipment. Other wordings on request.

No. 1 Made of black tire tread rubber. Wears like auto tire.

No. 2 Letters of yellow rubber, vulcanized into the black rubber.

No. 3 Reinforced center construction of auto tire fabric.

No. 4 Wedge-shaped base, holds rubber slab firmly in place.

No. 5 Rust-proof metal case embedded permanently in pavement.

No. 6 Metal anchor plates and bolts hold base firmly in the pavement, and makes refilling easy.

Order direct or thru your Dealer

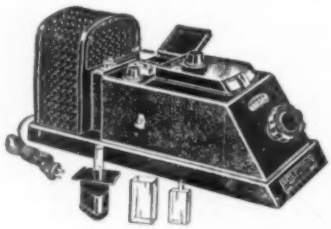
MANUFACTURED AND SOLD BY:

The SURE STOP TRAFFIC SIGN CO., Inc.

130 N. Oak Street — Wichita, Kansas

KLETT SUMMERSON ELECTRIC PHOTOMETER

Adaptable for Use in Water Analysis



Can be used for any determination in which color or turbidity can be developed in proportion to substance to be determined.

KLETT MANUFACTURING CO.

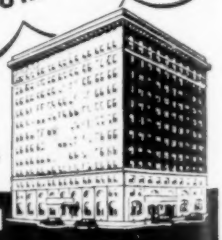
179 East 87th Street — New York, N. Y.

ERNIE SIMONS
Manager

HOTEL CLARIDGE

Preferred, always, by experienced travelers because of its many outstanding advantages. Conveniently located in the heart of St. Louis, only two short blocks from the Union Station and right in the center of the Wholesale District . . . Attractive rooms, each with private bath and shower and circulating ice water . . . Superior accommodations at economical rates . . . Visit our beautiful Marine Dining Room for excellent food, moderately priced.

350 ROOMS from $2.50



FREE PARKING

LOCUST AT EIGHTEENTH
ST. LOUIS MISSOURI

18-Inch Cutting Capacity On One-Man Chain Saw

The latest light-weight, one-man chain-saw to come from Henry Disston & Sons, Inc., 665 Tacony, Philadelphia 35, Pa., cuts with equal efficiency in any position.

Particularly useful for light felling and bucking, limbing, and construction-timber cutting, the new saw has an 18-inch cutting capacity and operates on a 2-cycle, air-cooled Mercury gasoline engine delivering 3½-hp at 4,000 rpm. A fuel meter assures positive flow of properly mixed fuel to the cylinder, at the same time functioning as a governor to control engine speed. The saw has a built-in automatic chain lubricator which has only one moving part, a flexible pick-up tube inside the oil reservoir, and it works under pressure.

Starting is effected by the self-winding Magnapull starter built into the engine. Control of the chain saw is concentrated in a well-designed pistol-grip handle. The throttle is at the operator's finger tips, with the fuel-mixture-control lever nearby. A priming valve is provided for easy starting.

Garden Tractor Drives New Lawn Mower

A five-blade reel-mower attachment for the Bolens Huski garden tractor is offered in 24- and 30-inch sizes to make wide swaths and reduce the amount of walking required. The heat-treated cutter bar is adjustable for heights ranging up to 2 inches, and makes possible close edge-trimming operations. Short turns can be made around trees or shrubs. The same tractor powers many other quickly attached implements, including plow, seeder, disk harrow, cultivator, sickle-bar air compressor, paint sprayer, riding sulky and snowplow.

Complete information may be obtained from the Bolens Products Div., Food Machinery Corp., Port Washington, Wis.

Dump Body For Pick-Up Trucks

The National Truck Equipment Co., Dept. 496, Waukesha, Wis., is manufacturing new, fully automatic, hydraulically operated, cab-controlled twin hoists and dump bodies for ¾- and 1-ton pick-up trucks. A single hoist unit may be obtained for ½-ton pick-ups.

The twin-hoist unit has a tested rated lifting capacity of 3 tons, with a wide safety factor for overloads. In most cases, the installation of the unit will not set the truck box up any higher than before installation. The single-hoist unit has a lifting capacity of one ton.

Another product to come from National Truck Equipment is an all-steel, strongly welded pick-up-truck express-type box which features a double-acting tail gate that swings from the bottom and, for dumping, from the top, facilitating the hauling of long poles.

The twin-hoist unit for pick-up trucks.

Smithson Trash Receptacles

16 years of research and engineering have produced the world's most useful and most beautiful Trash Receptacle.

- LOW COST OF MAINTENANCE
- NO PAINTING
- FACTORY SUPPLY OF SPARE PARTS
- SMOTHERS FIRES
- MADE OF ALUMINUM
- NO CORROSION

Write today for more reasons why the City of Los Angeles purchased 577 of these units.

SMITHSON COMPANY
219 So. Mednik Ave., Los Angeles 22, Calif.

BREAK PAVEMENT
the low cost way!

Cut Labor Costs

One MAN riding a MIGHTY MIDGET breaks 100 linear feet per hour of 18" wide trench opening in 6" concrete pavement and cuts a beautifully straight line. MIDGET is supplied with air from 105 C.F.M. compressor. Write for complete information and your dealer's name.

For complete information on ALL models and name of your nearest dealer, write:

R.P.B. CORPORATION
2751 EAST 11th STREET • LOS ANGELES, CALIFORNIA

McWane PRECALKED Pipe

EASY TO LAY... LASTS CENTURIES

There's no time lost on the job when you use McWane Precalked Cast Iron Pipe. Lead and redwood wedges are placed in the pipe bells at the foundry. All a man needs is a hammer and a calking tool to lay tight joints.

All sizes, 2" thru 12"

"Just socket the spigot and calk"

McWane Cast Iron Pipe Co.
Birmingham 2, Ala.

MAIN LESLIE STREET

DAY AND NIGHT VISIBILITY

LESLIE *Porcelain Enamel*
STREET MARKERS
(With Highly Reflecting Glass Beads)

Now Completing The City of Los Angeles

Offer *maximum* visibility at minimum cost! All types of Highway and Road signs and markers made to your specifications.

WRITE FOR PRICES AND FULL INFORMATION

LESLIE MANUFACTURING CO.
PORCELAIN ENAMEL SPECIALISTS
9230 DENTON ROAD DALLAS 9, TEXAS

WORTHINGTON-GAMON

LIQUID METERS
All Sizes All Types

Worthington-Gamon Meter Co.
Subsidiary
WORTHINGTON PUMP & MACHINERY CORP.
296 South Street Newark 5, New Jersey

Trippe

FIRE and POLICE FLASHER LIGHT

COMMANDS ATTENTION!

Comes completely equipped with red lens and mounting bracket for bumper. Can be furnished with fender or roof mounting at no extra cost.

Furnished with red lens—plain or lettered—for POLICE, SHERIFF, STOP, POLICE STOP or RED CROSS LENS

A brilliant ruby-red flare of light. Flashes on and off sixty times per minute. This attention commanding light is built especially for Police and Fire Department use. There are no moving parts consequently it is 100% reliable.

Write for Descriptive Literature and prices.

TRIPPE Manufacturing Co.
3610 W. 16TH STREET, DEPT. 9 CHICAGO 8, ILL.

LEADITE

FOR JOINTING CAST-IRON WATER MAINS

Melted and Poured ***No Large Bell-holes to Dig***
Saves at Least 75%

Leadite is shipped in powder form, packed in sacks of 100 lbs. net each. Leadite tested and used for over 50 years • Leadite joints improve with age.

Be sure it is Leadite and accept no imitations

THE LEADITE COMPANY
Girard Trust Co. Bldg., Philadelphia 2, Pa.

No Caulking

Powered Rotary Broom Is Highly Maneuverable

For use on airport runways and hangars, driveways, school and municipal walks, and athletic fields, the Flink rotary broom, which is available with

The Flink rotary broom shown in operation.

or without sickle cutter bar, may be equipped with several attachments: dump cart, water ballast rollers, reel mower, or sand-seed-fertilizer spreader.

A single rear-wheel steer makes it very maneuverable. A mist sprinkler and debris receptacle of "no-dust" design are two features of the machine. Completely self-propelled, the unit is powered with a Wisconsin 4-hp, air-cooled engine.

The rotary broom is manufactured by the Flink Co., Dept. SC, Streator, Ill.

American Organization Serves As Japanese Model

The Associated General Contractors of America, Munsey Bldg., Washington 4, D. C., is being used as a pattern for reorganizing the Japanese Contractors' Association along democratic lines. In a letter recently received by the association's managing director, H. E. Foreman, the American group was asked to teach, assist, and lead their Japanese colleagues.

An Improved Lime Slaker From the Dorr Co.

The new self-contained lime slaking unit offered by the Dorr Co., 570 Lexington Ave., New York, N. Y., provides continuous lime slaking and at the same time washes and removes the grit, sand, and unburned core contained in the burned lime. All the work is carried on in a single compact unit that overcomes the shortcomings of the more cumbersome rotary-drum slaker with its separate classifier combination.

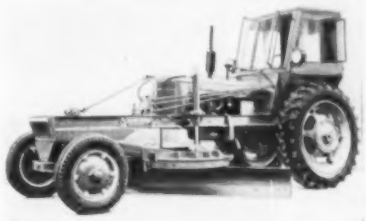
The mixer is of the impeller type, and promotes rapid, intimate contact of the lime with the liquor. The clasification compartment is a modified Dorr Classifier with a flared tank joined to the slaking compartment.

A new bulletin, No. 7281, describing the Dorrco Slaker, is available upon request.

Light-weight Grader For Construction, Maintenance

Meili-Blumberg's new Model 30 Power Maintainer, built around a modified International H power unit of 31.5 hp, can be used by small towns and cities for maintaining streets, alleys and highway "berms" as well as secondary highway road systems.

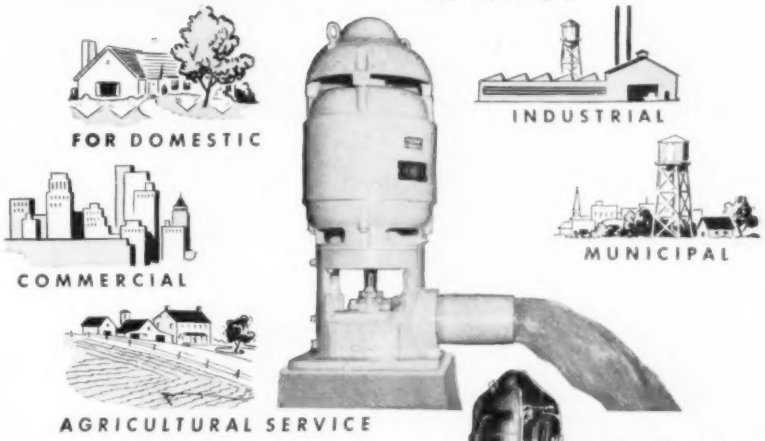
Hydraulically controlled from the operator's seat and featuring attachments which include leaning front wheels, power broom, Vee-type snowplow, bulldozer blade, scarifier, and fully enclosed cab and lights, the Maintainer operates at five forward speeds ranging from 2.5 to 15.7 mph, and one reverse speed. It is manufactured by the Meili-Blumberg Corp., Box 110, New Holstein, Wis.



The blade clearance on this Maintainer is 12 inches; maximum blade pressure is about 5,000 pounds.

PEERLESS HI-LIFT

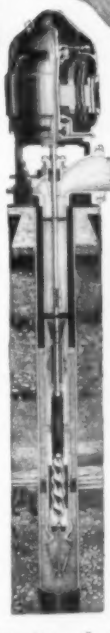
REG. U. S. PAT. OFF.



The low cost pump for developing a maximum water supply from small diameter wells

Here is one of the most simple and most positive of all deep well water pumping systems. The HiLlift pump has almost universal application because it's easy to understand, install and operate. In the Hi-Lift, Peerless utilizes an ingenious pumping element to literally squeeze water upward. Its pumping element consists simply of a hard chrome helically contoured rotor revolving in a similarly contoured rubber stator. That's all there is to this positive Peerless method of water lifting. It's the most forward step in pumping developed in the last 10 years, proved by thousands of successful installations in all kinds of service.

Peerless Bulletin B-142 fully describes and illustrates the many advantages of the Hi-Lift Pump. Write for your copy today!



CAPACITIES: 600 to 3300 Gallons per Hour from well depths to 600 feet.

Hi-Lift's pumping element is water lubricated, operates at half the usual pump speed; resists sand cutting abrasion and corrosion. When used with pressure tank, extremely high pressure may be developed without change or adjustment. These and many other Hi-Lift features are sure to make big savings in your water supply costs.

FULLY PATENTED BY R. MOINEAU & PEERLESS PATS.

fmc PEERLESS PUMPS

PEERLESS PUMP DIVISION, *Food Machinery Corp.*

LOS ANGELES 31, CALIF.; INDIANAPOLIS, IND.

District Offices: New York 5, 37 Wall Street; Chicago 40, 4554 No. Broadway; Atlanta Office: Rutland Building, Decatur, Georgia; Dallas 1, Texas; Fresno, Calif.; Los Angeles 31, Calif.

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SEE THE NEWEST AND BEST

LAKE SHORE

PERMANENT ALUMINUM STREET SIGNS

LOW COST NO MAINTENANCE

VISIBLE DAY & NIGHT

Wire or Write Today for Complete Information

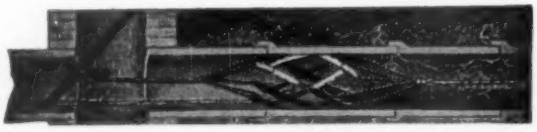
Catalog #20-5 Illustrated

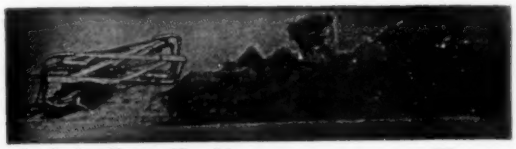
LAKE SHORE MARKERS

Div. of Lake Shore Pattern Works

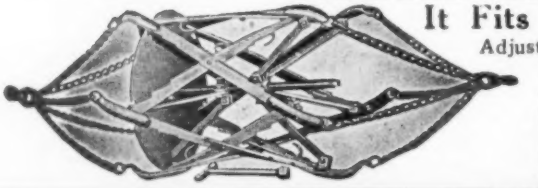
654 W. 19th Street, Erie, Pa.

EXPANDING ROOT CUTTER & SEWER CLEANER





Open and in action removing roots and caked sediment like this.



It Fits in on Every Sewer Cleaning Job

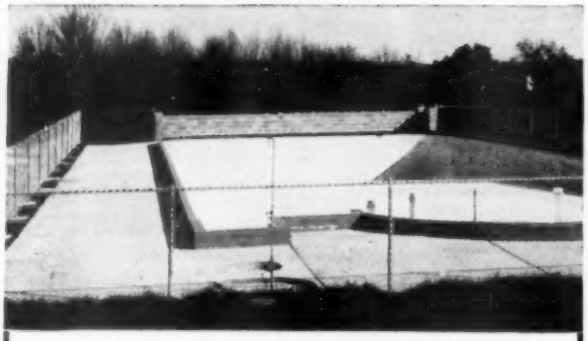
Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY

108 East Walnut St. Nappanee, Ind.



Here's a Watchman Trespassers Respect!

Tamper-proof, low in cost and virtually maintenance-free, Realock Chain Link Fence® provides maximum protection against arson, theft and trespassing.

Let us submit estimates for fence material ready for installation or covering erection by trained crews. Write to our nearest office.

® Reg. U. S. Pat. Off.

Realock Fence

WICKWIRE SPENCER STEEL DIVISION
361 DELAWARE AVENUE · BUFFALO 2, NEW YORK

THE COLORADO FUEL AND IRON CORP.
CONTINENTAL OIL BUILDING · DENVER 2, COLORADO

THE CALIFORNIA WIRE CLOTH CORP.
1080—19TH AVENUE · OAKLAND 6, CALIFORNIA

BRANCHES & DISTRIBUTORS IN KEY CITIES EVERYWHERE

This Portable Asphalt Plant is Suitable for All Paving Maintenance

Almost any type of pavement can be repaired economically and efficiently with a White Portable Asphalt Plant. Asphalt, brick, concrete, macadam, can be easily patched or resurfaced.

It will match any bituminous surface. Produces for immediate hot application or makes mix for deferred cold laying.

Contains internally fired rotating dryer, pug mill mixer, bituminous heating kettle, volumetric measurement, air controls. Mounted on pneumatic tires, or furnished for stationary operation. Capacities 4, 8, 12, 25 tons per hour.

Write for Catalog

Elkhart **White Mfg. Co.** Indiana

Weeding and Mulching Municipal Lawns

The Fairbanks-Morse power garden cultivator enables the operator to do a clean job of weeding and mulching simultaneously without damage to root growth. Self-propelled, the cultivator permits the user to work at a walking speed.

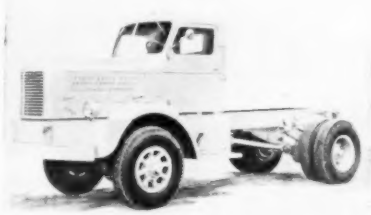
All bearings are hermetically sealed in oil. Working on a 1½-hp motor, the cultivator can be used for municipal grounds, parks, and other large areas.

Another machine offered by Fairbanks, Morse & Co., 600 South Michigan Ave., Chicago 5, Ill., is the Pathfinder, which cuts fine and coarse grasses and is capable of slashing through matted growth, stiff weeds, and light brush. This self-propelled power mower has a whirling-disk cutter of six sickle blades riveted on a steel disk which revolves at 3,600 rpm; this mower is also powered by a 1½-hp motor.

Cutting height of the Pathfinder may be adjusted from 1½ to 5 inches above the ground. The left side of the mower is designed to permit close cutting near buildings, walks, hedges, or other obstructions.

New FWD Heavy-Duty Truck

A new model, rated at 33,000 pounds gross vehicle weight, has been added to the FWD line of heavy-duty four- and six-wheel-drive trucks.



The ZU, manufactured by The Four Wheel Drive Auto Co., Clintonville, Wis., is powered by the 140-GZ, 500-cubic-inch high-compression gasoline engine, developing 188 hp at 2,060 rpm governed speed and 460 foot pounds of torque at 1,000 gpm. Recommended for use by street departments in year-'round maintenance work, with special emphasis on heavy-duty snow removal and for use with transit concrete mixers, the truck is provided with removable skirting and bumper which thus leave a clear front end for the mounting of accessory equipment.

LeTourneau Appoints Eastern Manager

Harry R. Powers is the new Eastern sales manager for R. G. LeTourneau, Inc., Peoria, Ill., according to a recent announcement. Mr. Powers started working for this company over 23 years ago and has worked continuously as a distributor, service manager, and sales representative except for five years of war service with the Army Engineers. He succeeds E. M. Ferguson, who has recently resigned.

Harry R. Powers

Line Material's Rotating Beacon

The Line Material Co., Airport Lighting Division, East Stroudsburg, Pa., manufactures a Bartow-type 36-inch spherical rotating beacon for Class 4, 5, 6, and 7 airports. The single lamp gives five powerful beams; the automatic lamp-changer insures continuity of service if one lamp fails. The beacon is fully approved by the CAA.

SPARLING
Main-Line Meters
2-Inch and up

Consistent Accuracy
Ease of Installation
and Maintenance
Low Pressure Loss

Quotations and Bulletin 310 come at your request.

The SPARLING Manufacturers of Water Measuring Equipment

Los Angeles 54 Box 3277 Terminal Annex
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Boston 8 6 Beacon Street

CHEMCO
Equipment
FOR
EVERY CHLORINATION
AND
WATER CONDITIONING
PROBLEM

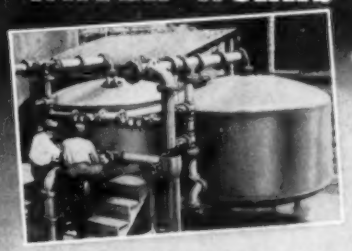
For Your
SEWAGE PLANT

CHEMCO CHLORINATORS are available for every type of installation. The above shows two CHEMCO 100# capacity chlorinator installed for the State of New York. Note use of Aqua-Thermal Coils.

For Your
SWIMMING
POOL

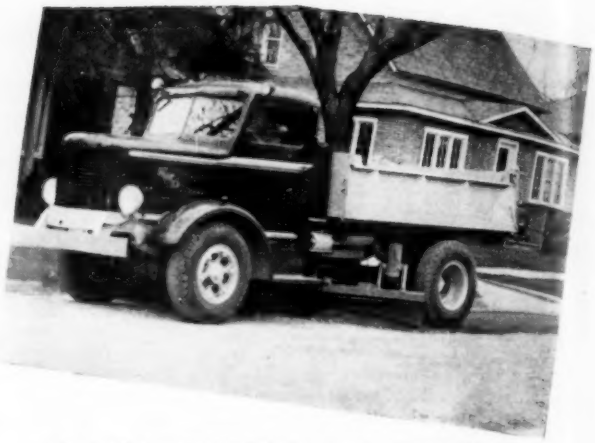
CHEMCO has "Everything for the Swimming Pool" from the Filters to the Life Preservers.

For Your
WATER WORKS



A large Chemco Filter Plant installation for the Santa Fe Railroad, Winslow, Arizona. Consult CHEMCO first for your Chlorinator or Water Conditioning Problem.

CHEMICAL EQUIPMENT CO.
1700 NO. MAIN STREET
P. O. Box 3098 Terminal Annex
Los Angeles 54, Calif.
MIDWEST FACTORY BRANCH
205 W. Wacker Drive Chicago 6, Ill.
AGENTS IN PRINCIPAL CITIES



• Pneu-Hydro SNO-LODER saves money on both initial cost and maintenance, yet handles snow load-for-load with larger self-propelled units. With the SNO-LODER, the loading truck pushes with its tailgate against the SNO-LODER bumper. As the truck pushes, one man handles all the controls, steering the unit into the windrow, operating the clutch and the load distributor chute. Safety brake allows complete control on grades, while the helix blade feeds snow to the conveyor.

• Pneu-Hydro EDGEMASTER is an economical aid to faster, cleaner roadside mowing. Mower blades are resharpened by EDGEMASTER without laborious hand filing at the phenomenal rate of a foot a minute. Simply operated, it handles any length blade, sharpening two edges of teeth at once. Powered by 1/3-hp. electric motor, EDGEMASTER is sturdily built of piping and heavy gauge steel. Write for illustrated folder.

• Pneu-Hydro Road Planers meet all requirements for low cost, heavy duty road maintenance. Road Planers are available with either hydraulic or pneumatic controls in 9, 10, or 12 foot widths. Both types are controlled by dash-mounted valves. The entire unit rotates on a notched quadrant of 80 degrees, locking the channel at the most effective cutting angle. The tough steel mold board is curved and crimped, and equipped with a long wearing cutting bit.

Send for complete and detailed literature on Pneu-Hydro road machinery. We are at the 1948 Road Show in person, and Pneu-Hydro equipment will be on display at the next Road Show. In the meantime, our equipment is receiving wide acceptance in the United States and South America.

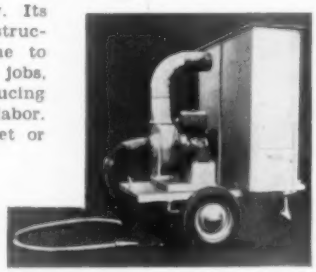
PNEU-HYDRO ROAD MACHINERY CO.

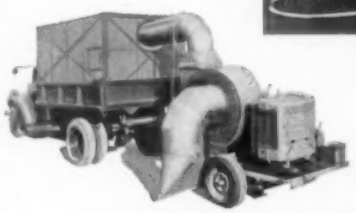
Cadillac, Michigan

CITY OFFICIALS—Attention

VACUUM LEAF LOADER

Is known for its versatility. Its amazing principle in construction enables this machine to handle wide variety of jobs, eliminating or greatly reducing costly cleaning-up hand labor. It will pick up leaves, wet or dry.





ABOVE:
Utility Vacuum Cleaner, for small areas

AT LEFT:
Vacuum Leaf Loader

UTILITY VACUUM CLEANER

Designed for small areas, such as estates, golf and country clubs, parks, and playgrounds, industrial yards, around shrubbery, high walls, fences, etc.

For facts write for descriptive bulletins

LEAF LOADER DIVISION
American Structural Steel & Tank Co.
M. A. Elliotte, Sales Manager
21050 W. 8 Mile Road
Detroit 19, Michigan

PROTECTING THE NATION'S RESERVOIRS!

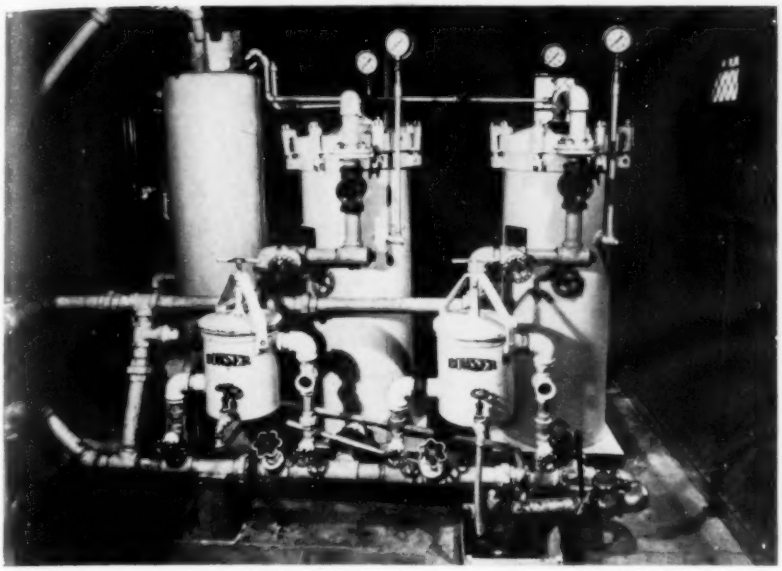
Experts in metal fabrications since 1886

Stewart 3TH Non-Climbable Chain Link Wire Fence assures the utmost in protection for reservoirs and all other public property. Stewart products for protective purposes also include: Wire Window Guards, Wire Mesh Partitions and Steel Folding Gates. When writing for information please mention products in which you are especially interested.

THE STEWART IRON WORKS CO., INC.
1521 Stewart Block Cincinnati 1, Ohio

Stewart IRON and WIRE FENCES

Diatomite Filtering of Pool Water



A great deal of interest in the use of diatomite water filters for swimming pools is being shown by city park and recreation superintendents, city engineers, and state health department personnel. Bowser, Inc., discusses the subject in a free folder called *The Swimming Pool Story*.

Most pool owners want a filter system requiring the minimum of operational attention and regard as a nuisance a system which must be backwashed every few hours. The swimming pool contents should be filtered every 6 hours.

With this turnover of the pool's capacity as the starting point, we can determine the rate of flow through the filters for each size of swimming pool. Let us take a specific pool of 60,000-gallon capacity. A flow rate of 168 gpm will be required.

For such a pool we recommend two Fig. 610-42 filters, each complete with a precoat pot, flow sights (for inlet and outlet of filter), pressure gauges (for inlet and outlet) and all necessary valves, piping, and fittings in 2-inch pipe size inter-connected to the filters and accessories. In addition we include one Fig. 906-25-1 slurry feeder, one 3-inch hair strainer for the pump-suction line, and one 170-gpm pump. The total selling price for this system will be slightly less than $2,750 f.o.b. factory.

The cost of operating the Bowser diatomite water filters is concentrated mainly in the filter aid consumed. We recommend a maximum precost charge of 1/10 pound of powder per square foot of area. Therefore, each 610-42 filter requires approximately 4 pounds of filter aid. In addition to the precoat charge, a small quantity of powder will be consumed as slurry feed which is fed into the raw-water inlet of the filter. In the example given, about 8 pounds of filter aid would be consumed by both filters for precoating, and approximately 12 pounds more for slurry feed during the 72-hour period. Therefore, a total of 20 pounds of filter aid every three days at 3½ to 4½ cents per pound results in a total of not more than $1.80 to $2 per week. In most cases the savings in backwash water more than offset the filter-aid cost.

VERN DEHAVEN
Bowser, Inc.
Fort Wayne 2, Ind.

FOR CLEAN, SAFE
SHOWER ROOMS AND SWIMMING POOLS

"Bull Frog"
SAF-T-KLENZ

Removes rust stains, lime deposits, soap oil, body grease, algae formation leaving floors and decks practically slip-proof.
Minimizes conditions that breed and spread infectious germs.
Simply sprinkle Saf-T-Klenz on damp surface, scrub or mop lightly, and flush with water.

WRITE TODAY FOR LIBERAL FREE SAMPLE!
BERMAN CHEMICAL CO., 715 SUPERIOR ST., TOLEDO 4, OHIO

IT'S POWERFUL
IT'S SELF-CONTAINED

ONE MAN GANG OF ALL WORK

the
SYNTRON
Gasoline Hammer
PAVING BREAKER

A really SELF-CONTAINED tool — requiring no air compressor or battery for operation — that will save you MONEY AND TIME.

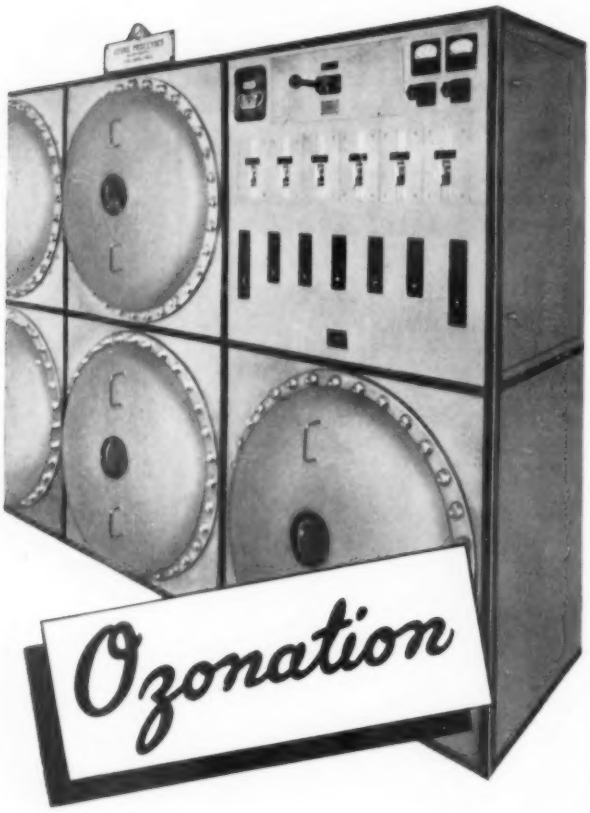
Busting concrete
Cutting asphalt
Digging shale, clay
Tamping backfill

and a host of other jobs.

Write for illustrated folder

SYNTRON CO.
430 LEXINGTON
HOMER CITY, PA.

EASIER - FASTER
CHEAPER



A SIMPLE, MORE EFFECTIVE METHOD OF WATER TREATMENT

Yes, OZONATION is a simple, more effective method of water treatment. To prove its adaptability to your water treatment problems, WELSBACH maintains a completely equipped central laboratory for testing your water as well as a mobile unit for pilot plant testing in the field. Let us demonstrate and investigate your treatment problems on the spot. Write for detailed information.

WELSBACH

THE WELSBACH CORPORATION
OZONE PROCESSES DIVISION
1500 WALNUT ST. PHILA. 2, Pa.

They can't say, 'Your Garbage Collection Stinks'

...when you use Heil Colecto-Paks to provide better sanitation and service — at lower cost

There are no flies on your service or your garbage, when you use Heil Colecto-Paks.

Completely hydraulic in operation, smooth-working, quiet, dependable Colecto-Paks assure you the fastest possible performance. Operating tests in many cities and towns against all types of units, prove this.

Here are a few of the Heil Colecto-Pak features that you can count on to speed up, simplify, and improve your garbage and refuse collection:

Totally-enclosed steel body, developed with the help of recognized health and sanitation authorities, keeps garbage and refuse out of sight and smell — eliminates the hazards of flies.

Easy loading — average loading height is only 36 inches. Your crews load faster, easier, and with less strain.

Efficient use of body space cuts down trips to the dump, saves gasoline and tires, speeds the work. You see, the packer plate compresses the material toward the discharge end so that 24 cubic yards of wrapped garbage are carried in a 12-cubic yard body.

The Heil Colecto-Pak, designed for garbage, is available in 9- and 12-cubic yard sizes. The Heil Colecto, a twin brother of the Colecto-Pak, except that the packer plate is omitted, is designed for handling ashes and refuse. Give your community greater health and satisfaction, at lower cost — specify Heil Collecto-Paks or Colectos on your next bid. Write for descriptive literature.

THE HEIL CO.
GENERAL OFFICES • MILWAUKEE 1, WIS.

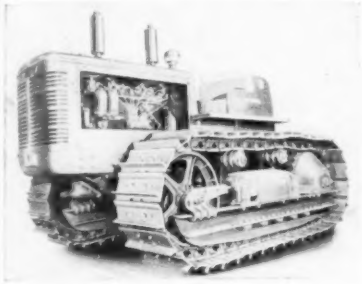
BH-139

Increased HP For 6-Cylinder Tractor

The Industrial Power Division of International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill., has announced increased hp ratings for the 6-cylinder International TD-18 diesel crawler tractor: at 1,300 rpm, the TD now develops 97 flywheel hp, 91.5 belt hp, and 80.5 drawbar hp.

Other improvements, giving better fuel economy and more power, include new cylinder heads, new manifolds, a new fuel system, and a compression ratio of 15½ to 1.

Intake and exhaust manifolds are mounted on opposite sides of the engine, providing a direct flow of intake air and exhaust gases. With manifolds separated, the volumetric efficiency of the intake air is increased. When intake air is not pre-heated by the exhaust manifold, it retains its maximum atmospheric density while being drawn into the cylinders.



The injection pump has two plungers, each serving three cylinders, so that accurately metered, equal quantities of fuel are delivered to each cylinder according to the needs of the engine. The injection nozzles are single-orifice-type, set, wth precombustion chambers, into the cylinder head at an angle which promotes complete combustion of low-cost fuel. The injection pump has a quick-acting, variable-speed governor with torque control; when the engine is pulled down by overload, the torque control causes more fuel to be injected into the cylinders, thereby increasing the engine's lugging ability.

Davey Compressor Appoints Dealer

The Larkin Machine & Equipment Co., Inc., Rockville Centre, N. Y., has been appointed a full Davey dealership by the Davey Compressor Co., Kent, Ohio.

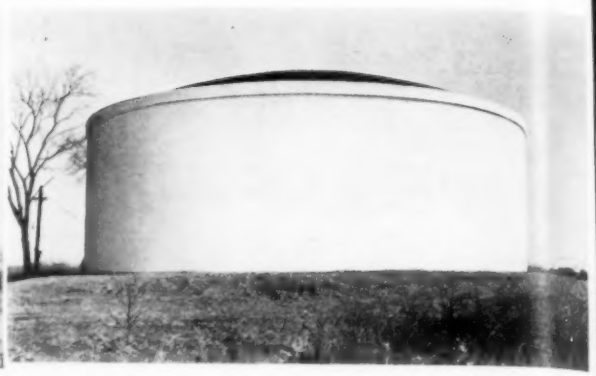
Larkin will handle a territory composed of Nassau, Suffolk, Queens, Kings, and Richmond Counties, and will sell and service the complete Davey line, consisting of Air Chief portable compressors, industrial departmental compressors, mine and rail-car units, Auto-Air truck-mounted machines, Track-Air tractor-mounted compressors, heavy-duty truck power take-offs, and mobile machine shops and engine generator sets.

Harley-Davidson Builds New Plant Addition

259,000 square feet have been made available at the Harley-Davidson Motor Company building at Butler, Wis., which is an addition to the main factory located in Milwaukee. The increased space is used for augmented production of motorcycles.

Hardie High Pressure Shade Tree Sprayers are available in a wide range of capacities and in many different assemblies for convenient use with motor trucks and tractors. Many desirable economies are possible by combining Hardie units with existing motor equipment. Write for Catalog data. The Hardie Mfg. Company, Hudson, Mich., Los Angeles 11, Calif., Portland 9, Oregon. C. W. Lewis & Son Ltd., Grimsby, Ont. Canada. Export Dept. Detroit 26.

Hardie DEPENDABLE SPRAYERS
THE ONLY SPRAYER THAT IS COMPLETELY LUBRICATED



Prestressed "GUNITE" Tanks are Available Now!

Let Prestressed Tanks, built of "Gunite" solve your tank requirements. Above photograph at left shows prestressed bars in place, ready to receive "Gunite". Beside it is the finished tank, solid, leakproof, and built to last for years.

A watertight, properly designed "Gunite" concrete tank can be built quickly and economically by our organization. We also repair disintegrated concrete structures of all types. Drop us a line on your concrete problems.

Write our nearest office for catalog and full details.

PRESSURE CONCRETE CO. CPC **193 EMMET ST., NEWARK, NEW JERSEY**
S. COURT ST., FLORENCE, ALABAMA

MARTIN *model* **22** **TRAILER**

ANNOUNCING A VERSATILE NEW TRAILER WITH A CAPACITY OF 5 TO 7 TONS.

EXTREMELY LOW PLATFORM HEIGHT. Rollers, Track tractors, and bulk material easily loaded and transported.

JOB TESTED ENGINEERING. Rugged construction, ample flotation and adequate safety features typify all models of MARTIN TRAILERS.

There is a MARTIN TRAILER for every hauling job.

At your request let us send you detailed specifications and prices.

MARTIN MACHINE CO. KEWANEE, ILL.

"GUNITE" CONCRETE

(Since 1915)

SPECIALISTS IN CEMENT GUN WORK

RESERVOIR LININGS (NEW AND OLD) • CONCRETE AND MASONRY REPAIRS • STEEL ENCASEMENT • FIREPROOFING • STEEL COAL BUNKER, STACK, HOPPER, AND PLATE LINING • SEWER LINING AND REPAIRING • CANAL, DITCH, AND DRAIN LINING.

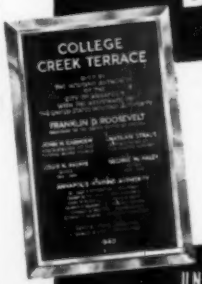
GUNITE CONCRETE & CONST. CO.
1301 Woodswether Road **Kansas City 6, Missouri**

District Branch Offices

R. N. Turner, Dist. Mgr., 228 N. La Salle St., Chicago 1, Ill.
B. H. Mueller, Dist. Mgr., 6625 Delmar Blvd., University City, (St. Louis), Mo.
Philip D. Barnard, Dist. Mgr., 2036 Addison, Houston 5, Texas.

Branch Offices: DENVER • DALLAS • NEW ORLEANS

Insure the BEST in permanent
BRONZE TABLETS
for all City Structures



We offer you a wide choice of designs in handsome permanent bronze tablets for municipal buildings, hospitals, homes, courts, schools, art centers, cornerstones, statues, doorplates, signs, etc.
Write today for illustrated catalog and information on ordering by mail.

"Bronze Tablet Headquarters"

UNITED STATES BRONZE SIGN CO., INC.
Dept. AC, 570 Broadway, New York 12, N. Y.

New Medium-Weight Concrete Breaker

Built for general demolition work where a heavier breaker is not required, the new medium-weight concrete breaker, Model B67, manufactured by the Gardner-Denver Co., Quincy, Ill., is especially suitable for horizontal operations, such as tearing out walls, builder breaking in quarries, trenching in shale or hardpan, or preparing blacktop for patching.

The breaker's design incorporates a safety latch on the throttle valve handle to prevent accidental operation of the hammer when moving the breaker about on the job with live air on the line. The B67 is equipped with a lubricator of sufficient oil capacity for several hours' operation on one filling.

The machine weighs 63 pounds, has an over-all length of 23 inches and may be fitted with chucks for either 1⅛- or 1¼-inch hexagon tools.

Alhydro Gets Appointment From Palmer Filter

Alhydro, Inc., 516 N. Charles St., Baltimore, Md., has been appointed distributing agent for Palmer filter-bed agitators and Anthrafilt filter medium by the Palmer Filter Equipment Co., 822 E. 8th St., Erie, Pa.

Protect Vital Papers with Fire-Safe Record Files

On the subject of preservation of records, put not your faith in fireproof buildings, mere metal files, daytime safety, or insurance policies. Safe-Cabinet equipment is designed, built and tested to preserve records in use. This equipment is described in a new illustrated folder by Remington Rand, Inc., 315 Fourth Ave., New York 10. Write for *Fire-Dangerous Fallacies Regarding Fire Risk.*

For Sale

Two (2) Price Rathbun Oil Engines, 150 hp., 227 rpm., rotation clockwise, Engine Nos. 2104 and 2097, with one lot spare parts.

One (1) Lansing #776X Batch Concrete Mixer on 2-wheel trailer, solid rubber tires, with Lauson engine.

One (1) Addressograph Feeder, Model 192, 1/6 hp. Delco Motor, 110-volt, 60-cycle.

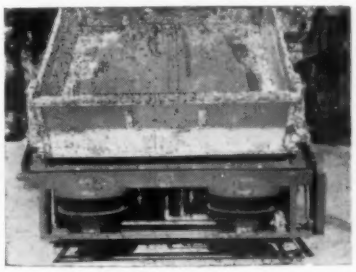
One (1) Dipper and Stick with 3/4-yd. Bucket for Koehring Model 302 Shovel, length 13 ft.

Any reasonable offer will be considered.

For Details, Write:

PURCHASING AGENT

City of Corpus Christi, Texas



Hydraulic Spreader Gives

√ **Controlled Speed**
√ **Controlled Density**
√ **Controlled Direction**

City, county and state highway departments use Hydro Spreaders because they provide the safe, sure way of spreading icy streets and roads. Easily installed on any dump truck with hydraulic hoist.

Material can be spread from 9 ft. to 35 ft. at speeds up to 30 m.p.h. All sprockets and chains are fully enclosed and material can be dumped over spreader without damage. One man can drive truck and operate spreader from cab.

An exclusive Hydro Spreader feature is the automatic gate opening device. When the driver starts the spreader the gates open and as the spreader is stopped the gates automatically close. **Immediate delivery.**

Write Paul M. Cole Co., Nat'l Distrs., 30 No. LaSalle St., Chicago, Ill.

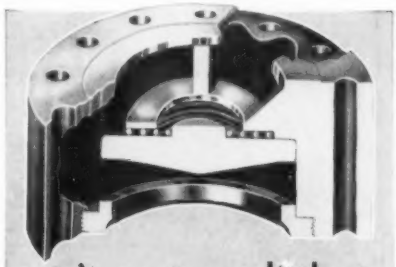
Dealer Territory Available

Hydro Spreader Corp.
247 Madison St. Waukesha, Wisc.

WATER HAMMER

can cost

a Fortune

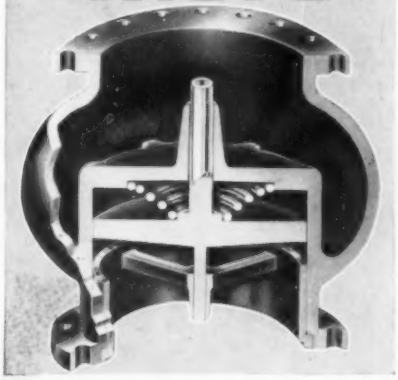


yet it costs so little to correct with

THE WILLIAMS-HAGER

flanged **SILENT CHECK**

VALVE



Used and specified on hundreds of new buildings—and installed on thousands of old buildings to prevent costly "Water Hammer"—the Williams-Hager Flanged Silent Check Valve will solve your problem, too! Write for new technical bulletin.

THE WILLIAMS GAUGE CO.

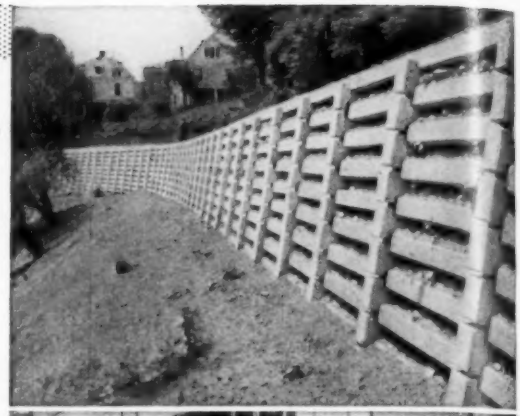
Pump Valves . . . Water Gauges . . . Gauge Cocks . . . Steam Traps . . . Pump Governors . . . Feed Water Regulators . . . Water Columns

3013 PENNSYLVANIA AVE. · PITTSBURGH (12), PA.

UNIVERSAL
CONCRETE
CRIBBING
Saves Plenty!

The fast, flexible way to build retaining and load-bearing walls. Pre-cast ready for fast installation with unskilled labor. Open or closed face type. Build to any height, straight or curved. 100% salvage if moved. Free catalog and engineering data. Write today for Bulletin AC-48.

Universal
CONCRETE PIPE COMPANY
297 S. HIGH ST., COLUMBUS, OHIO



HAND
STORAGE BATTERIES
FOR MUNICIPALITIES

HAND storage batteries are heavy-duty batteries provided with heavy, hand-pasted tank-formed plates, heavy glass mats, acid and heat resisting micro-porous rubber separators, splash decks and genuine hard rubber containers. Built for use in Police Radio cars, Sanitation trucks, snow plows, sweepers, emergency trucks, ambulances, and fire apparatus.

The Hand Laboratory, Nyack, N. Y.

KEEP SEWERS OPEN
with
OK CHAMPION
POWER SEWER CLEANER

OPEN

CLOSED

Town and City officials throughout America are adopting OK CHAMPION Power Sewer Cleaner to keep sewers clean and efficient. Takes roots, dirt, sand, and other debris up from main in one continuous operation. All men work above street level.

Pulling forward opens the jaws that bite into obstructions. Reversing the pull on the bucket automatically closes jaws which hold load pulled back to street level. Write for complete details.

CHAMPION CORPORATION 4716 SHEFFIELD HAMMOND, IND.

Install Sewer Laterals Without Need for Trenching

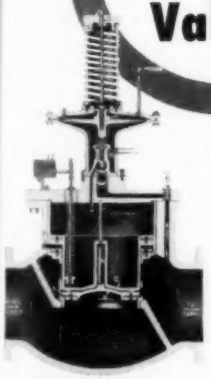
Sewer laterals can be installed without the expense of an open trench by the use of the Detrick Lateral Earth Drill. Reports from John Higgins, Plumbing Inspector, Quincy, Ill., indicate how the drill has made it possible to install sewers in difficult conditions without delaying traffic or causing the expense of pavement cuts. Mr. Higgins reports that the drill was used on two jobs in this city. One installed a lateral under a busy street. The other installed the lateral under the Illinois State Highway inside the city. In neither case did the work interfere with traffic or produce any hazard to life or property.

The Detrick drill records accuracy up to 100 feet. It drills at the rate of 5 to 10 feet per hour. It is simple and compact, easily operated in confined areas. It drills an 8-inch hole which can be enlarged to any size required. The installation of the pipe can be accomplished easily with the equipment furnished and a small jack. Vitreous pipe can be installed by using a patented joint or a heavy strand of oakum and a mixture of ground asbestos and portland cement

The Detrick Lateral Earth Drill is manufactured at 14th and Maple Streets, Quincy, Ill.

The Detrick earth drill working under pavement a distance of 85 feet.

Automatic
"Stop-Starter"
GOLDEN-ANDERSON
Altitude
Valves



Eliminate
all water
surges
and
shock

When a single line is used for both supply and discharge, these valves maintain a constant water level within 3" to 12" variation. The "Stop-Starter" switch stops the pump as the valve closes. Write for a descriptive, technical catalog.

Let Golden-Anderson Engineers Solve your Flow Control Problems

GOLDEN-ANDERSON Valve
Specialty Company · Pittsburgh 22, Pa.

Another **"Warren Pipe"** line soon to be paying dividends to its owners through years of carefree service — buried and in service, it's the "forgotten man" of your water system, on duty 24 hours each day, year after year.

Warren cast iron pipe and fittings can be supplied in sizes 2" to 84" with all types of joints and in accordance with standard specifications.

CAST IRON PIPE **CAST IRON PIPE FITTINGS**

GREY IRON CASTINGS

SPECIFY "WARREN PIPE"

WARREN FOUNDRY & PIPE CORPORATION
11 BROADWAY, NEW YORK, N. Y.

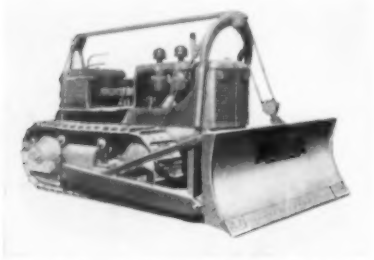
WARREN PIPE COMPANY OF MASS., INC.
75 FEDERAL ST., BOSTON, MASS.

1948 Road Show

(Continued from Page 141)

Cor perforated drainage pipe, tunnel-liner plates, Flex-Beam guard rail, bin-type retaining walls and spiral-welded pipe-foundation piles.

Bulldozers, snowplows, power-control units and rippers will be on display at the booth of the Baker Mfg. Co., 503 Stanford Ave., Springfield, Ill. The last two items will be displayed for the first time to the public.



This Baker bulldozer-blade will be displayed attached to an Allis-Chalmers tractor.

New mixers, both for concrete and black-top paving, both gas- and electric-powered, will be featured by the Foote Co., Inc., Nunda, N. Y.

Tre Gardner-Denver Co., 102 Williamson St., Quincy, Ill., will show for the first time its VP4 pneumatic sump pump along with the B67 paving breaker. There also will be displayed standard models of air compressors, drills, and paving breakers.

Conveyors to fit every need will be displayed by the George Haiss Mfg. Co., 139th St. and Rider Ave., N. Y. 51, N. Y. These will include trough conveyors, car unloaders, and heavy-duty loaders.

The equipment needed for black-top street construction and maintenance will be on display by Littleford Bros., Inc., 500 E. Pearl St., Cincinnati, Ohio. These will include the Spray King Model M pressure distributor, a new Vari-packer roller, a Tankar heater, and a Model 66-R Kwik-Melter kettle. A Spray Master Model CLRC pressure distributor will also be exhibited along with a 2108 road broom, a Trail-O-Roller and other equipment.

Marlow Pumps, 228 Greenwood Ave., Ridgewood, N. J., will exhibit its self-priming centrifugal pumps and the Mud Hog diaphragm pump.

The Meili-Blumberg Corp., New Holstein, Wis., will display its power graders, maintainers, implement and equipment trailers, and street safety-line markers.

At the booth of the N. P. Nelson Iron Works, Inc., 820 Bloomfield Ave., Clifton, N. J., will be displayed the new Model K5B bucket loader.

The Rosco Mfg. Co., 3138 Snelling Ave., Minneapolis, Minn., will display for the first time the new model POA RoscOdometer that measures lineal distances in feet and attaches to the underframe of any truck or car. Also on display will be the model MTA street flusher, a new street cleaner, and a maintenance unit for bituminous streets.

The Standard Steel Works, North Kansas City, Mo., will show a new street broom along with its exhibit of its Model SJ maintenance distributor and other equipment.

At the booth of the Texas Co., 135 E. 42d St., New York, will be a photographic display showing the range of uses of Texas asphaltic products in the construction and maintenance of streets, highways, and airports.

Hoists and dump bodies will be shown by the Wayne Division, Gar Wood Industries, Inc., 36253 Michigan Ave., Wayne, Mich. These will be shown along with the famous Gar Wood Load Packer refuse body and other units.

Street sweepers will be the chief display of the Wayne Motor Sweeper Division of the Brown-Bevis Co., 4900 Santa Fe Ave., Los Angeles, Calif.

Charles A. Braslan Dies

Charles A. Braslan, San Francisco sales engineer for the Neptune Meter Co., 50 West 50th St., New York 20, N. Y., died recently.

Mr. Braslan, who is survived by his widow, Mrs. Agnes B. Braslan, was the son of Major Charles P. Braslan, pioneer and nationally known seed grower of San Jose.

Foreground—rectangular combustion-mixing chamber; background—cylindrical ignition chamber; Morse Boulger Mechanically Stoked Incinerator, Sydney, Ohio

Select from this list of five different type and you will get the best type for yo particular problem whether it is trash, ga bage, sewage sludge, institutional organ matter . . . separately or in combinatio

★For Garbage and Rubbish

(1) Cell and Hearth
(2) Circular Hearth and Grates—Mecha ically Stoked

★For Sewage Sludge Drying and or Burning

(3) Multiple Zone Furnace—Mechanica Stoked

★For Garbage, Rubbish and Sew age Sludge

(4) Circular Unit, Mechanically Stoke with Separate Compartment for Se age Sludge Reduction

★For Garbage and Trash (Individ ual Buildings)

(5) Kernerators (Flue-Fed and Ready-Bui

Our incinerator experience goes back near sixty years. Our work is guaranteed. Ou incinerators are constructed under the super vision of our own field men who stay wit it until the unit is in operation, fully broke in and crews instructed.

MORSE BOULGER DESTRUCTOR CO.

205-R East 42nd St., New York 17, N. Y.

REPRESENTATIVES IN PRINCIPAL CITIES

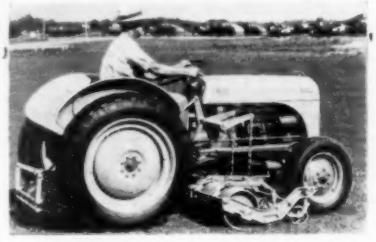
Nordberg Appoints Wright Sales Engineer

G. B. Wright has been appointed sales engineer for the Nordberg Mfg. Co., Milwaukee 7, Wis.

G. B. Wright

For the past two years Mr. Wright has held the position of sales engineer with the Sterling Engine Co. Before that he served in the U. S. Coast Guard as Engineer Officer and later as the Commanding Officer of a destroyer escort operating in the Atlantic and Mediterranean.

Seven-Foot Swath With Gang Mower



The Roseman Park Challenger.

The Park Challenger mower, manufactured by the Roseman Tractor Mower Co., Evanston, Ill., consists of three Roseman Hollow-Roller Drive mowers mounted on the new Ford tractor or the Ford Tractor Ferguson System. Mowing a swath 7 feet wide, the Park Challenger can cut close to trees and as a result may be used efficiently for maintaining parks, parkways, highway shoulders athletic fields, and other large turfed areas.

Features include a great degree of traction; the elimination of wheel marks; the ability to cut ahead of the rear wheels, and to overhang curbs without dropping off, eliminating the fringes that involve hand trimming.

The Park Challenger attachment attaches or detaches in a few minutes, so that the tractor can be used for other purposes without difficulty.

Bailey Opens N. C. Branch Office

The Bailey Meter Co., Cleveland, Ohio, designers, manufacturers, and appliers of measuring and controlling equipment for steam power plants, has opened a branch office in Charlotte, N. C., in Room 1004 of the Independence Building. J. R. Powell has been appointed branch manager for this office.

CEMENT GUN COMPANY

"GUNITE" CONTRACTORS

GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.

VIADUCT SAVED WITH "GUNITE"

The two views are of the nine-span Fifth Street Viaduct at Lynchburg, Va. This is one of four viaducts we repaired with "GUNITE" for that city in 1946.

This thirty-five-year-old viaduct had become dangerously weakened by disintegration of the concrete girders, floor beams and deck slab. The entire area of the underside of the deck, beams and girders was chipped, sandblasted and restored to original strength with reinforced "GUNITE." The bridge railing was likewise completely rehabilitated.

"GUNITE" restoration of old structures of this kind will result in a great many years of additional safe service.

Our bulletin D2300 describes many similar jobs and scores of other uses of "GUNITE." Write for your free copy.

MANUFACTURERS OF THE "CEMENT GUN"

How often are you refilling sweeper broom cores?

AFRICAN BASS FIBRES

INDIAN PALMYRA STALKS

Fresh, high quality fibres make a big difference in sweeper mileage you get between broom core refills. We are able to offer you the best fresh quality fibres in all types and sizes. Your inquiry will receive our prompt attention.

MOUNTAIN HICKORY SPLINTS

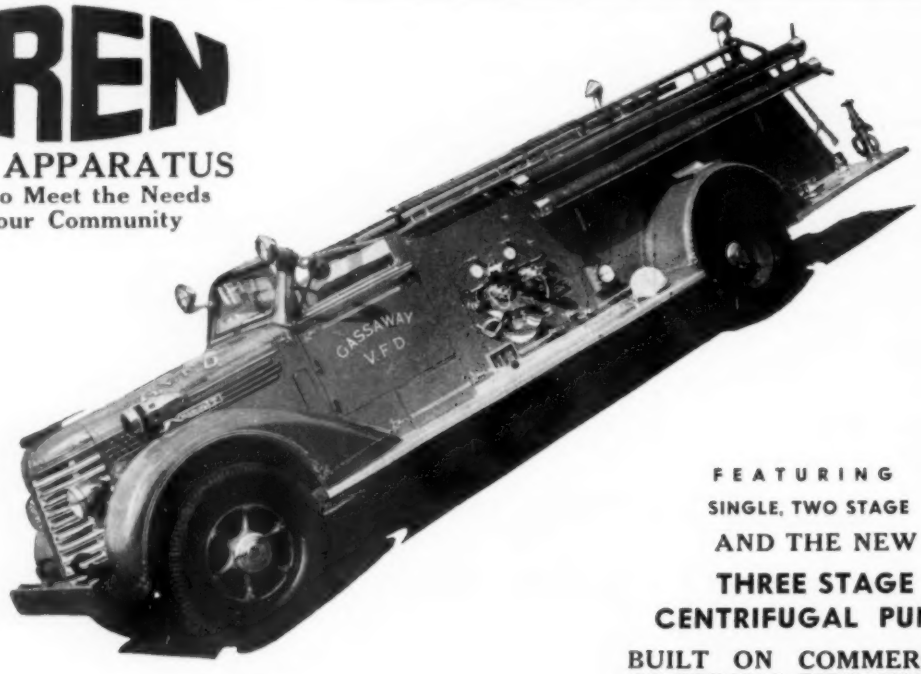
STEELWIRE CHINA SPLIT BAMBOO

The OTTO GERDAU CO.

Established 1872

82 Wall Street, New York 5, N.Y.

OREN
FIRE APPARATUS
Built to Meet the Needs
of Your Community



FEATURING
SINGLE, TWO STAGE
AND THE NEW
THREE STAGE
CENTRIFUGAL PUMPS
BUILT ON COMMERCIAL
OR SPECIAL FIRE CHASSIS

OREN ROANOKE CORP.
ROANOKE 16, VIRGINIA

Stethoscope for Pipeline

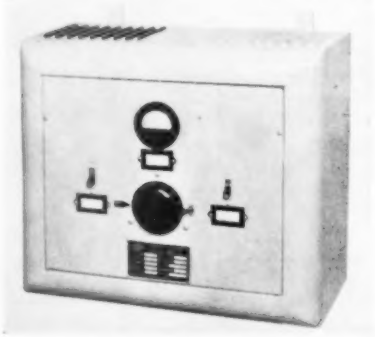
The Fisher M-Scope, manufactured by the Fisher Research Laboratory, Inc., Palo Alto, Calif., "looks" underground and traces down a buried pipeline, telling not only where the pipe is but also how deep it is buried.

Bristol Conducts Courses On Instrument Maintenance

A series of courses for plant-instrument and operating men on instrument theory and application, with special emphasis on maintenance and repair, is being conducted by the Bristol Co. of Waterbury, Conn., manufacturers of automatic controlling, recording, and indicating instruments. Each course consists of two weeks of intensive lectures and laboratory work on instruments for pressure, temperature, relative humidity, flow, pH, and electrical measurements; pyrometry; pneumatic, electric, and electronic control systems, and telemetering.

F. A. Faust, of Bristol's Education Department, is directing the program.

Battery Charger for Municipal Departments



A stabilized rectifier for unattended battery charging is offered municipalities by the Industrial Electronics and Transformer Co., Los Angeles, Calif.

Voltage-regulating transformers compensate for variations in A. C. line voltages, and maintenance-free selenium rectifiers assure maximum life and efficiency to batteries. Output current is of 4-6-12 amperes, output voltage from 3 to 60 cell ratings (booster charging feature included) with the A. C. input either 110 or 220 as specified. Models comprise floor and wall cabinets and an ebony asbestos panel.

Richard F. Jordan, Of Sterling Wheelbarrow, Dies

Richard F. Jordan, vice-president of sales for the Sterling Wheelbarrow Co., Milwaukee, Wis., died recently.

Mr. Jordan, a graduate of Iowa State College in the class of 1908, first held a position on the sales force of the Hill-Clark Machinery Co. of Chicago, Ill. In 1912 he became connected with an internal combustion sales group in the same city. He joined Sterling as the company's Boston district manager six years later; by 1921 he was promoted to the home offices and worked in West Allis, Wis., and subsequently became assistant sales manager. Ten years later he was sales manager of the company, and in 1945 he was appointed to the position he held at his death.

Speed Splicing Of Concrete-Curing Blankets

A new machine, manufactured by the Minnesota Mining & Mfg. Co., 900 Fauquier Ave., St. Paul 6, Minn., shows promise for use in concrete street construction and other jobs where large slabs are involved. Designed to speed the splicing of concrete-curing blankets, the Scotch Floor Tape Applicator pays out Scotch Wetordry Masking Tape as fast as a man can walk; the tape joins sheets of asphalt-impregnated paper into a single protective covering for fresh concrete.

The tape sticks on contact, and the machine, weighing 33 pounds, presses it tightly in place, securely bonding the paper blankets together. The tape is impervious to heavy rain, wind, and hot sunlight. When the concrete has cured, the tape can be stripped off easily, permitting the full width of the protective paper to be re-used repeatedly.

New Fire Alarm for Buildings

A new fire alarm for buildings where public safety is paramount is announced by The Autocall Company of Shelby, Ohio, which is celebrating the 40th year of specialized engineering and manufacturing experience in the electrical signalling field. This closed-circuit system consists of break-glass non-code fire-alarm boxes and signals. The heart of the system is the control panel.

Reliability of operation is featured by a "trouble" bell which rings in the event of circuit difficulties which would tend to render the system inoperative. The tripping of a fire-alarm box sets the coding mechanism on the control panel in operation, and the code **** **** **** **** (4 4 4 4) is repeated four times on the audible signals of the system. When the four rounds of code have been transmitted, the "trouble" bell continues to ring until the box is re-set.

Always on the Road

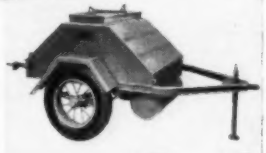
HAUCK

Melting Kettles

Asphalt Tool Heaters

Asphalt Surface Heaters

Road Oil Distributor Burners



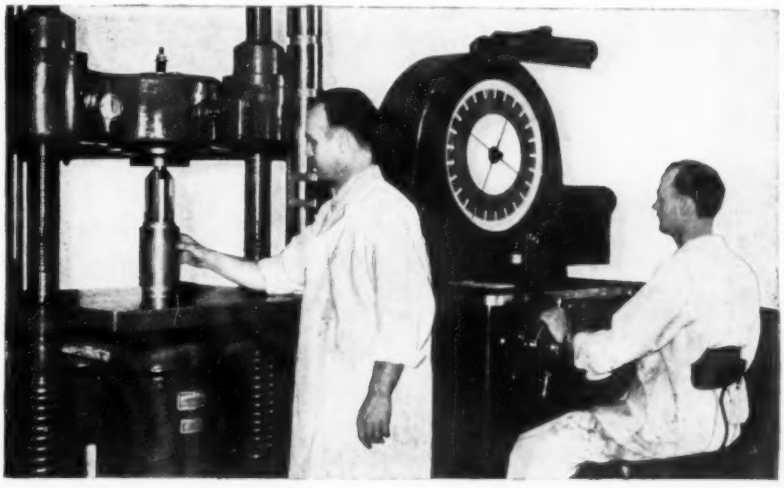
Hauck Asphalt Tool Heater and Melter for Binder Cement.

Speed Master Melting Kettle for Asphalt and Tar.

For road paving or repair work, Hauck Oil Burning Tar and Asphalt Melting Kettles, Tool Heaters and Burners are recognized the best for tough service and ready portability. Prompt shipment of any type or size you need. Write for Highway Construction and Maintenance Catalog.

HAUCK MANUFACTURING CO.

112-122 Tenth St. • Brooklyn 15, N. Y.



NOSTRIP Testing Engineers

running stability tests on bituminous mixtures

Standard and accepted laboratory tests show the benefits of using NOSTRIP. Official public works agencies have tested and approved this additive for many years.

NOSTRIP, the all-year additive for tar and asphalt, will give you a more durable paving job, even in the wettest weather. NOSTRIP enables you to coat wet aggregate with liquid bituminous materials and greatly increases the resistance to stripping of any bituminous films.

Here are six important reasons NOSTRIP will give you a better, longer lasting surface.

1. AGGREGATE CAN BE WET OR DRY IN SURFACE TREATMENT, SEAL AND TACK-COATING, COLD PLANT-MIX, AND MIXED-IN-PLACE CONSTRUCTION.
2. NO DELAYS DUE TO RAINSTORMS.
3. HALVES THE BLADING AND MIXING TIME FOR ROAD-MIX.
4. TESTED AND APPROVED BY OFFICIAL RESEARCH AUTHORITIES.
5. AUTHORIZED FOR FEDERAL AID ROADS.
6. CAN BE ADDED IN THE FIELD OR AT THE REFINERY.

Street and highway officials know it pays to demand a proven and approved anti-stripping additive with years of successful experience. Write us for specific information on how NOSTRIP can help you.

NOSTRIP DIVISION, MAGUIRE INDUSTRIES, INC.

122 East 42nd Street, New York 17, N. Y.

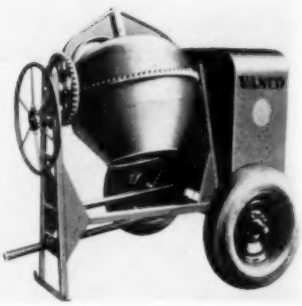
Flashing Red Signal Marks Traffic Obstructions

A new type of automatic flashing red signal for marking accidents, stalled vehicles, and other traffic obstructions on streets is being sold by the Signal Mfg. Corp., 624 S. Michigan Ave., Chicago 5, Ill. The Thoro-Flare, a portable device which starts flashing a warning as soon as it is picked up by its steel wire handle, is visible at distances of 500 feet; it can be seen in rain, fog, sleet, or snow. Operating continuously for 100 hours on a standard 6-volt lantern battery, and longer if used intermittently, it is particularly useful in danger zones on streets and airports. The brilliance of the light is not diminished by battery depreciation.

Low-Priced Half-Sack Mixer

Vanco Products, Inc., Colorado Springs, Colo., has added to its line of small utility mixers a new, gasoline-engine-driven cement mixer, Model 35-25VR, which is a half-sack mixer rated at 3½ cubic feet and 10% capacity.

The 35-25VR has a newly designed tilt gear for mixing and pouring from either side. The engine is a 3-hp, air-cooled gasoline engine driving through multiple V-belts. The mixer is mounted on a trailer with two pneumatic tires.



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These fine-quality meters have won a majority of the many accuracy tests in which they have been entered—ample proof of how quality control pays off for you when you equip with *American* or *Niagara*.

Buffalo Meter Company manufactures the *American* Meter (bronze casing) for soft or filtered water, and the *Niagara* Meter (galvanized-iron casing) for most hard water requirements.

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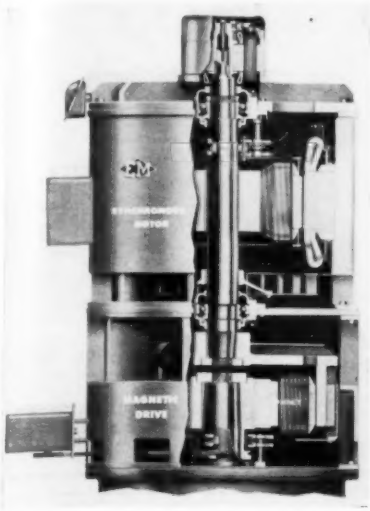


A 250-hp, 1,200-rpm vertical synchronous motor magnetic drive unit, which operates 200-rpm vertical sewage pumps through a reduction gear.

The vertical synchronous motor magnetic drive unit from the Electric Machinery Mfg. Co., Minneapolis 13, Minn., gives a smooth adjustable speed control for centrifugal pumps. The motor drives the ring of the magnetic drive at a constant speed while a magnet member of magnetic drive mounted on the gear shaft operates the pump at the particular speed required by the liquid-level control. Frequent motor starts and stops are eliminated.

Kenney Joins Andrews Assoc.

Norman D. Kenney, formerly with Whitman, Requardt & Associates, has joined the staff of G. Douglas Andrews Associates, engineering consultants, 212 Washington Ave., Towson, Md.

Portland Cement Research Laboratories

The Portland Cement Assn., 33 W. Grand Ave., Chicago 10, Ill., has awarded a cost-plus-fixed-fee contract to the Turner Construction Company, for the building of research and development laboratories at Skokie, Ill.

New Features in Flexible Power Sewer Cleaner

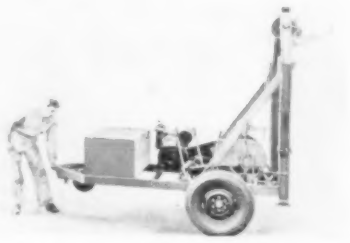
Ten major mechanical features to speed power-cleaning operations and increase work safety are built into the new-model power bucket machines made by the Flexible Sewer-Rod Equipment Co., 9059 Venice Blvd., Los Angeles 34, Calif.

A folding third wheel simplifies work involving positioning and towing.

Instant leg adjustment gear does away with make-shift trench jacks.

A cast-steel cable swivel, with Timken roller bearings, permits cable rotation under pulls up to 10,000 pounds. A booster clutch to be used on loads over 1,500 pounds assures against machine damage or pipe breakage. A safety clutch is set to slip belts at about 1,500 pounds. A specially engineered level winder lays the 1,000 feet or less of ½-inch plow cable on the large drum (the small-drum capacity is 1,000 feet of ¼-inch plow cable). A back-lash pulley keeps cable tight between level winder and drum.

Other features include triple V-belt drives, wire-reinforced and notched for air-cooling; safety drum clutch with positive lock, in or out of gear; level winder hood mounted to prevent abrasive materials from damaging winding mechanism; "H" beam uprights to provide the rigidity needed against strains imposed by a powerful engine and heavy pulls.



The unit carries a 7.7-hp Briggs & Stratton engine which has a reserve pull of over 8,000 pounds.

power costs reduced 14%
volume increased 300%
coefficient raised 225%
for
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Before cleaning 17,000 feet of badly tuberculated 30" pipe for the City of Atlanta, *a coefficient of less than 60 was established.* After cleaning and centrilining *the coefficient was raised to over 135,* resulting in a power saving of 14% and an increase of 300% in the carrying capacity of the line.

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AUGUST 1948

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The American City

Snow will fall in most cities and legislatures will meet in most states in a few months.

Are you getting ready for both? See pages 5, 19, 94-95, and 104-106.